September 1996
Volume 64 No 9

Amateur Radio

Journal of the Wireless Institute of Australia

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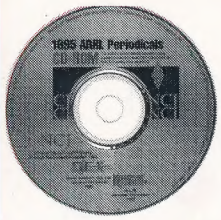

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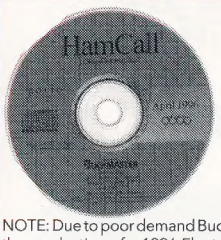

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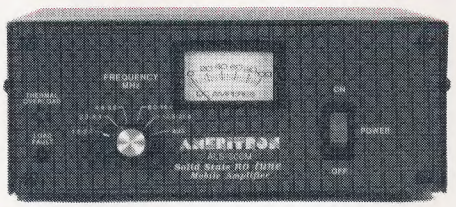

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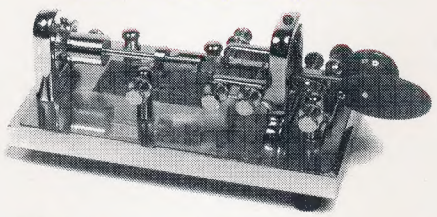

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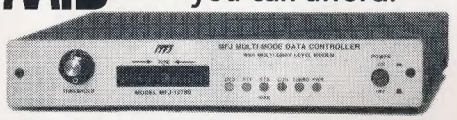

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Cover

As you read in last month's *Amateur Radio*, the lucky winner of the WIA's 1995-96 Membership Recruitment and Retention Campaign prize of an Icom IC-706, donated by Icom Australia, was George Bromley VK1KGJ. George was presented with his transceiver at the 22 July meeting of the ACT Division of the WIA by the managing director of Icom Australia, Kiyoshi Fukushima VK3BZX. Looking on is the VK1 Federal Councillor, Richard Jenkins VK1RJ.

BACK ISSUES

Available, only until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

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When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus $2.00 for each additional issue in which the article appears).

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Amateur Radio Service

A radiocommunication service for the purpose of self-training,intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editor's Comment

Tying Up Loose Ends

Several items, all quite unrelated, need to be mentioned this month, hence the title. First, in July under the heading "Hams in the News" I referred to amateurs who had received the Order of Australia, being two recently from VK7 and one, five years ago, from VK5. I have now received information from Peter Brown VK4PJ about another recipient last year.

I quote from Peter. *"On Queen's Birthday 12 June 1995 at Government House Brisbane, Mr Norman Francis Wilson VK4NP was presented by the Governor of Queensland with the Member of the Order of Australia medal. This was 'for service to people with visual and learning impairments by developing a machine for converting Braille into print'."*

So there have been at least four recipients of the OAM among VK amateurs. How we failed to find out about VK4NP at the time is somewhat of a mystery, but I am glad that we can now include him in the list, and send our congratulations. Are there any others we haven't heard of, particularly from VK1, VK2, VK3 or VK6? Peter adds that the Braille machine is computer-based and patented world-wide in many languages. He also tells us that Harry Angel VK4HA is still "pretty good" at the age of 104.

A notable change of topic. There have been three resignations from the Federal Office recently. Norm Eyres VK3ZEP and Bruce Kendall VK3WL have resigned from the Publications Committee, both citing family responsibilities as the reasons for their inability to continue. We thank them both for the years of service they have given *Amateur Radio* and wish them well for the future.

The Federal Office Manager, Donna Reilly, also resigned in July mainly for personal reasons. She came to the position in mid-1993 and quickly displayed her organisational competence. We are sorry to see her go and also wish her well for the future. The vacancy was advertised in August *Amateur Radio* and applicants have until the end of September to respond.

Continued on page 55

CONTRIBUTIONS TO *AMATEUR RADIO*

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. *"How to Write for Amateur Radio"* was published in the August 1992 issue of *Amateur Radio*. A photocopy is available on receipt of a stamped, self addressed envelope.

■ WIA News

Roger Harrison VK2ZRH, Federal Media Liaison Officer

Government Proposes Changes to Radiocommunications Act and Creation of New Regulatory Authority

On Friday, 16 August, the Minister for Communications, Senator Richard Alston, released details of sweeping changes the Government proposes to make to the Radiocommunications regulatory authority, to be called the Australian Communications Authority (ACA).

The Minister released for public comment, Exposure Draft versions of the legislation at the time of his announcement, advising that the deadline for comment was Thursday, 5 September 1996.

As the proposed changes may possibly have considerable impact on Amateur Radio in Australia, the WIA will be making a submission, fast-tracking the Submission on Amateur Licensing currently being finalised.

The full text of the Minister's 16 August statement is as follows:

Draft legislation for amending the Radiocommunications Act 1992 and the first package of draft post 1997 telecommunications legislation was today released for public comment by the Minister for Communications and the Arts, Senator Richard Alston.

Senator Alston said he expected to release further parts of the draft post 1997 legislation in the coming weeks.

"Changes to the Radiocommuncations Act 1992 are essential to provide the radiofrequency spectrum needed for future mobile communications services and will be important for increasing competition in telecommunications post 1997," Senator Alston said.

"The proposed changes would allow high demand spectrum to be allocated without prior clearance of the current licensees. They would also permit quicker allocation, while giving the current licensees an appropriate period to move to other spectrum or reach a commercial agreement to stay in that spectrum with the new licensee."

Other changes include extending the coverage of the Trade Practices Act 1974 fully to the Radiocommunications Act, and to provide for health or safety standards.

"The draft technical regulation provisions will form part of the Telecommunciations Bill 1996 and have been released to allow comment and to guide the industry in establishing its standards development, and compliance processes," Senator Alston said.

"This approach is similar to that used in Europe with emphasis on industry self-regulation. The draft Australian Communications Authority Bill would establish the Australian Communications Authority (the ACA) which would provide the necessary safeguards where self regulation is inappropriate.

"The Australian Communications Authority is to be formed by merging AUSTEL and the Spectrum Management Agency, except for the competition policy function, which will be transferred to the Australian Competition and Consumer Commission.

"Technical regulation of telecommunications and radiocommunications is to be harmonised to have similar procedures by changes to the relevant legislation.

"The proposed telecommunications technical regulation provisions would provide for mandatory standards on customer equipment and cabling to protect the health and safety of consumers and telecommunications employees, and to protect the telecommunications networks.

"Other standards would address the ability to call emergency numbers and compatibility for the standard telephone service."

Senator Alston said he had released the proposed standard carrier licence condition concerning industry development plans to reinforce the Government's commitment to Australian industry development in this important and rapidly growing industry.

"To allow all comments received to be fully considered and for the Radiocommunications Amendment Bill 1996 to be introduced as soon as possible, the closing date for comments is Thursday, 5 September 1996," Senator Alston said.

"I urge those wishing to make comments, to do so within this deadline."

To obtain copies of the draft legislations ring the Department on (06) 279 1831 or access it via Internet at *http://www.dca.gov.au* Contact: Ashley Manicaros, Minister's Office, +61 6 277 740.

[Release No. C34/961]

The first package of Exposure Drafts of the proposed legislation can be downloaded from the Internet at *ftp://www.dca.gov.au/pub/policy/tranc on2.doc* which is in Word 6 word-processor format. Be warned, it's a 141-page document in a 280 kbyte file.

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HF Propagation Beacon Network Expands, Perth Beacon Arrives Soon

The latest HF beacon to go on air in the International Beacon Project series is OH2B, located near Helsinki in Finland. Operating on five bands, it transmits for 10 seconds in turn on 14,100, 18,100, 21,150, 24,930 and 28,200 kHz. On each frequency, the beacon steps through four power levels, from 100 watts, to 10 watts, then 1 watt and 100 milliwatts, before returning to 100 watts, transmitting a long dash on each.

The original network of nine beacons on 14.1 MHz has been operating for some 15 years, each transmitting in turn in a coordinated time slot. This network, with beacons located in North and South America, Africa, Europe and Asia, is being upgraded to 5-band beacons, and expanded with an additional seven beacons in new locations, including Australia and New Zealand.

The Helsinki 5-band beacon joins LU4AA in Argentina, which came on-air late last year, and YV5B in Venezuela, which began operations in February. Soon to join the network is CS3B from Madeira, off the North-West coast of Africa.

The WIA anticipates that the 5-band beacon for Australia, to be located near Perth, will be shipped here shortly. The Institute is awaiting a licence and call sign allocation from the Spectrum Management Agency. To fit in with the overall plan for the International Beacon Project to keep the call sign identification as short as possible, the WIA has applied for a single-suffix call sign from the SMA, hoping to get VK6B. Past practice has been that single-suffix call signs in the VK series have been issued to Scientific licences.

The International Amateur Radio Union (IARU) sponsors and coordinates the International Beacon Project in conjunction with the Northern Californian DX Association (NCDXA). IARU project coordinator is John G Troster W6ISQ. IARU Region 3 coordinator is Jamie Pye ZL2NN. Further details on the International Beacon Project can be found in the October and November 1994 issues of *QST*, the journal of the American Radio Relay League (ARRL).

Military Use of 2 m Averted

The WIA objected to a recent Defence Department proposal to use frequencies in the 2 m band during military exercises held in conjunction with United States forces from mid-July to the end of August, averting military use of the band which is an exclusive amateur allocation in Australia.

In early July, the WIA received a request for advice from the Spectrum Management Agency (SMA) who had been asked by the Department of Defence for clearance to use three frequencies between 144 and 148 MHz for FM transmissions in the Darwin area between 14 July and 30 August.

The WIA's view is that any use of an exclusive amateur band by other services is unacceptable, in principle and practice. This was conveyed to the SMA in the reply to their request. The Institute pointed out that there had been recent incidents of unauthorised use of exclusive amateur spectrum on 7 MHz by the Australian military (see *WIA News*, March 1996), and any further precedents for military operation within our exclusive bands would be most unwelcome.

The SMA refused the Defence Department's request.

Close cooperation between the SMA and the WIA recently has resulted in the removal of intruders to our bands and the averting of possible severe interference. Examples include the changing in operations of an ionospheric radar in Melbourne which intruded on the 160 m band, the closing down of hang glider enthusiasts using 2 m in Victoria, and having the operating frequency of a planned wind profiling radar near Wollongong in NSW changed from 49 MHz to 44 MHz, which would otherwise have meant severe interference to 50 MHz band operators in and around Wollongong and Sydney.

Amateur Assists Yacht in Distress

On Friday, 12 July, at 0730 UTC, Pat VK5LR of Victor Harbour south of Adelaide in South Australia, responded to a Mayday call on the 20 m band from an American amateur aboard a yacht in distress in the Pacific ocean near Hawaii.

The 43-ft yacht was located about 300 miles of the coast of Hawaii and was taking on water. Pat contacted the Victor Harbour Police who relayed the message to the maritime emergency centre in Canberra, who contacted the authorities in Hawaii.

Pat VK5LR monitored the frequency for a couple of hours, being joined by stations in Guam and Alaska. The outcome is not known.

Shuttle-MIR Carries Amateurs Mission This Month

The next Space Shuttle mission to carry amateur radio, STS-79, is scheduled to launch 15 September, for a nine-day flight, during which it will link up with the Russian MIR spacecraft.

STS-79 will carry the Shuttle Amateur Radio Experiment, or SAREX, operating voice on 2 m using FM. Three hams will be aboard the Shuttle: Jay Apt N5QWL, a mission specialist who has flown three times before and used amateur radio on each flight; Carl Walz KC5TIE, who flew in July 1994 and participated in SAREX on that mission; and mission specialist John Blaha KC5TZQ, who has flown four previous Shuttle missions.

During the MIR link-up, Blaha will exchange places with American astronaut Shannon Lucid who has been aboard MIR since March this year. Blaha will remain aboard MIR for the next five months.

More information about the Shuttle mission SAREX operations can be obtained from the Internet Web page *http://www.arrl.org.sarex/* provided by the American Radio Relay League (ARRL).

Amateur Band Pirate Prosecuted

An unlicensed operator found using the amateur bands in Queensland has been successfully prosecuted by the Spectrum Management Agency and recently convicted in the Queensland Magistrates Court.

The following authorised statement was released to the WIA by the Spectrum Management Agency on Friday, 16 August.

"In mid-1995, a complaint was received from amateurs living in Queensland concerning a suspected unlicensed amateur operator. These suspicions were based on observations that the person who claimed to be a visiting amateur from Victoria, in fact knew little about amateur radio or basic technical matters.

"Investigations by Agency technical officers confirmed that the person was unlicensed. A search warrant was executed which resulted in seizure of radio equipment and sufficient evidence to mount a prosecution under Section 47 of the Radiocommunications Act 1992 – unlawful possession of radiocommunication devices.

"Approximately one year after the complaint was made, the matter was heard in a Queensland Magistrates Court and resulted in the conviction of the person. A fine and costs amounting to approximately $200, or in default a short term of imprisonment, were awarded against the person. An order requiring the forfeiture of an amateur transceiver and antenna tuning unit to the Crown was also made."

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We Jumped the Gun on AX2OOO

Last month's *WIA News* release on the "Olympics call sign" of AX2OOO (AX2-triple-Oh), jumped the gun in relation to a decision on the WIA's request for an extension of time on usage of the call sign. The Spectrum Management Agency (SMA) has actually reserved their decision on the WIA's request for use of the call sign for six months before the Olympics opening ceremony to one month after the closing ceremony while they have discussions between the relevant bodies within the Agency. This error was not picked up when last month's *WIA News* was reviewed before being released.

In addition, to clarify the matter of who has been issued the AX2OOO call sign, it has been issued to the Federal WIA. However, the WIA is delegating the activation of this special event call sign to the initial applicant, the Westlakes Amateur Radio Club, who are to administer all aspects of the rostering of its activation, and QSLing etc. This confusion arose because not all of the relevant correspondence had been made available to everyone on the SMA Liaison Team. Steps have been taken to avoid such administrative oversights in the future.

The WIA has also requested the issue of another special event call sign from the SMA for the 2000 Olympics, AX2SYD, to operate over the same period requested for AX2OOO. The WIA has put to the SMA that these two call signs – AX2OOO and AX2SYD – would be appropriate to commemorate the Olympics, which were awarded to the City of Sydney for the year 2000. The two call signs would serve to highlight internationally the predominant associations with the next Olympics. Having two call signs would not devalue the worth of either, and would provide additional opportunities for local operators and clubs to activate a special event Olympics call sign. It is anticipated that demand would be very high. Having two special event call signs would also multiply the opportunities for the creation and promotion of awards associated with the special event Olympic stations. Operation of the Olympic call signs for one month after the Olympics' closing ceremony would cover the associated Paralympics, too.

The Federal WIA told the SMA that administration of the use of AX2SYD, should it be issued, would be delegated to the NSW Division, anticipating that it would be used within the greater Sydney metropolitan area, while AX2OOO might be used more widely.

For the just-concluded US Olympics in Atlanta, Georgia, there were four special event Olympics call signs in use. There was one "official" Olympics commemorative station, W4O, with W400O (four hundred-Oh), W96O and W26O being authorised alternative call signs.

Novice Limited Licence Proves Popular

In the 12 months following the introduction of the new Novice Limited licence, more than 200 enthusiasts have taken up licences and the distinctive H-suffix call signs are now regularly heard on the 2 m and 70 cm bands, many being active on packet radio, according to reports.

By the end of May, there were 238 Novice Limited call signs issued. New South Wales had the greatest number, with 54 H-calls on issue, with Queensland close behind, having 50 H-calls recorded. In Victoria, 37 H-calls had been issued to the end of May.

The popularity of the Novice Limited licence bodes well for future growth in amateur radio. The number of licences on issue was stagnant for several years between the announcement in 1992 that new licence grades and privileges would be introduced and the release of the new Technical Licence Specifications last year.

International Award for Australian Amateur

The WIA's Federal Coordinator for the amateur satellite service, Graham Ratcliffe VK5AGR, has been awarded the new G3AAJ AMSAT-UK Trophy for "outstanding service to the Amateur Satellite Service".

Graham is the first recipient of the recently inaugurated award, according to the Radio Society of Great Britain's (RSGB) news service. Graham was awarded the Trophy at the AMSAT Colloquium held at the University of Surrey in Britain during late July, attended by almost 100 delegates from 17 countries.

The RSGB presented a cheque for 11,000 pounds to the AMSAT-UK Phase 3D fund at the Colloquium. Presented by RSGB President-elect, Ian Kyle GI8AYZ, the donation was in addition to a 25,000 pound donation made last year to the Phase 3D satellite fund. The Phase 3D satellite may be launched in January 1997.

■ Operating

Radio Sports (ARDF) Comes to Townsville

Iain Morrison VK4IGM fills us in on this history making event.*

The VK team at the 2nd Region 3 ARDF Championships.

The Townsville Amateur Radio Club, on behalf of the WIA, was the host club for the 2nd Region 3 ARDF Championships, held from 15 – 20 July 1996.

How did TARC become involved in ARDF? Club member Wally VK4DO had been to China and other Asian areas as part of his work and to give lectures. Being a keen amateur, he always tried his best to make contact with other amateur operators. This led to his friendship with the Nanjing area Radio Club and, during one of these visits, he was introduced to "Radio Sports". He was invited back to participate in the next National Chinese Radio Sports events, and so he, Ron VK4BRG and Ray VK4LU were the first VKs to participate. From here the fever grew, with equipment being sourced, copied, improved and tested. Ray has since retired from the field but Wally and Ron have gone on to help stage what has become the most prestigious event in amateur radio history for North Queensland, and most likely for VK.

At the TARC general meeting on 6 February 1990, TARC moved that Wally arrange a Sister Club for us in China. At the TARC meeting on 5 June 1990, BY4RSA was made our sister club.

As Wally was planning another attempt in Radio Sports we ran a raffle to support the 1993 VK ARDF team which was drawn in June 1993 at Mission Beach. In October of that year, Wally, with his wife Dorothy and his son Glen, attended the first Region 3 ARDF Championships, where he and Charlie VK4CAU were the WIA Team and came fourth in the OT (Old Timers) section.

In August 1994, Wally presented his proposal on behalf of the TARC to hold the second Region 3 ARDF Championships in Townsville, and this was later accepted by the IARU Region 3 Committee. From here the planning was in earnest, the dates were set, venues and accommodation had to be found, mapped, walked, tested, and all sorts of letters of permission for use of lands arranged.

Wally is a surveyor, so his knowledge of terrains and paperwork involved in finding rightful owners was very useful. This background of his was demonstrated by his striding purposefully through the bush when showing TARC referees where their Tx was to be hidden – not bad for an old fella! We silently wondered if we would be able to locate the sites again the next day after inspecting them only once !

The action and information in Townsville started to get faster and faster, and slowly the rest of the Club members realised that, for us, this was bigger than "Ben Hur", and much bigger than our usual big event, the Bi-Annual NQ Convention!

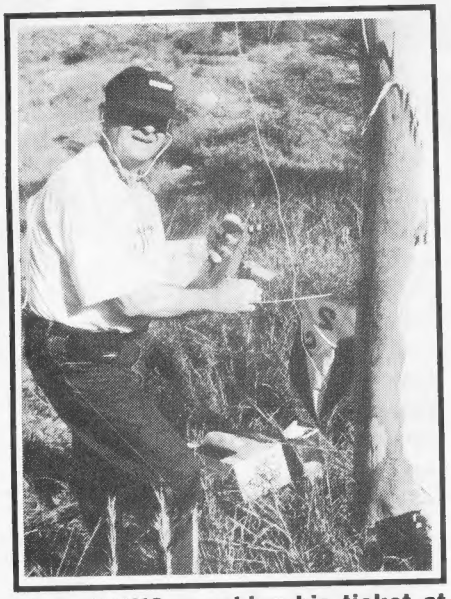
Accommodation was arranged at the James Cook University of North Queensland, during their mid-year break, and this also turned out to be ideally close to the scrub for one of the events. To prepare Club members for the official duties, Wally held working bees and training sessions in parks, with lectures and explanations on operating procedures at the TARC Social evenings. He also detailed plans and timetables at regular Club meetings to keep us all informed of progress. Thus we were trained as Official International Referees to keep the activity uniform world wide.

In the meantime Wally had also attended various meetings and ARDF events worldwide, and assured us that there wouldn't be any problems with snow for our event!

Dorothy, Wally's wife, has also travelled and trained for ARDF; without her full support this event may not have been possible. Her diplomatic presence was evident when greeting the various delegations from overseas, many of whom she had met before.

Equipment

Ron VK4BRG went into this aspect of the operations, and spent untold days and weeks in the design, testing and building of the various bits and pieces



Chris SP5HS punching his ticket at one of the transmitter sites.

required. These included the twelve "foxes". There are five foxes used in each event with a fully operational spare being held in reserve at each site in case of operational failures. A special fox is used at the finish that is switched on continuously at the end of the time allocated for each course, to allow "lost" persons to home in on its ID code and return. Each fox contains a 2 metre and 80 metre transmitter, which are keyed in a individual code, and run by a timer. The timers all had to be capable of common synchronisation before the event, so that each Tx was only on for one minute in every five minutes. The package had to be small, battery operated, and equipped with suitable aerials.

Ron's design used a fixed electrical type J-box on the top which the four 2 m antenna elements screwed into when being used, and a BNC socket that the external 80 m balun was connected to. For 80 m, a long wire is slung up into a tree vertically, and two ground counterpoises are laid out (neatly, so as not to trip the contestants!). Murphy played his part in our events, and a couple of standby Txs were pressed into service during the events, with Ron busily delving into gear during events to make it all work again. The secret for this type of event is equipment, equipment and more equipment!

The official opening was held on Tuesday, 16 July, but teams and individuals started arriving on Saturday, 13 July. The Secretary General of the Region 3 ARDF Committee, Chen Ping, had arrived earlier and was enjoying hospitality at Strathdickie and Townsville with Wally, Dorothy, and their families. This week was used to show Chen the courses selected by Wally, and to keep the paperwork rolling in the procedures area. Each overseas visitor was given a shoulder bag made by the ladies and friends of the TARC; contents included an official badge, maps, tourist information, a copy each of July 1996 *Amateur Radio* magazine and July 1996 *Backscatter*, the TARC newsletter. The special ARDF event logo was screen printed on one side of the bag, with the TARC logo on the other.

On Saturday, the JA team were the first large group to arrive, along with various individuals on different flights. The delegation of four contestants from East Kazakstan arrived a little late on Tuesday, having taken the "long path" so to speak. A TARC working bee was held on Sunday afternoon at University Hall, which was to be the hub of all activities for the next week. The meeting room upstairs was set up for use, depending on time of day, as registration, equipment repairs workshop, jury and official meeting room, and also as an "eyeballing" lounge! A beam was erected on a mast out in the lawn area for HF operation of our special event call station VI4RDF, and two metre voice and packet links were also setup. Various other facilities were also rented for the event including tables, chairs, portable toilets, buses and lots of loaned gear from various shacks in the area.

Program

The week was planned as follows:

Saturday: Arrivals.

Sunday: Setting up and testing, more arrivals.

Monday: Arrivals.

Tuesday: 0930 Official opening. Equipment practice session locally. After lunch, all visitors transported to the Great Barrier Reef Wonderland, for tours through the Aquarium, Omnimax theatre and Museum of North Queensland. Local referees were taken bush to be shown the location of their transmitters for Wednesday's event.

Wednesday: 2 metre event.

Thursday: All day trip for visitors to Billabong Sanctuary, a local wildlife park. Local referees again into the bush to locate their transmitters next day. In the evening, the Mayoral Greeting at Townsville City Hall.

Friday: 80 metre event. Evening, official banquet and presentation.

Saturday: Departures.

A 24 seater bus was available for the whole week, to be used for shopping trips and sightseeing when not officially required.

The official opening was made by one of the TARC past Presidents, now Federal Member of Parliament for Herbert, Peter Lindsay VK4TO. Just shows what a President of the TARC can aspire to! He welcomed us all on his behalf and for the Minister of Communications and I think that, having seen the practice runs, the fun and excitement, he would have like to have stayed and joined in. Our local Area Manager for the SMA, Rick Snow, presented an apology from Ms Goode, who was unfortunately unable to attend.

"Nobu" JK1AXK, a 14 year old YL, on the hunt.

The WIA Federal President, Neil Penfold VK6NE, greeted all contestants on behalf of the WIA, and wished them all success in the events to follow. Each country's Team Leader also gave a short welcome speech, and then the photographs started. All possible combinations of individual teams, group teams, ring-ins, speech makers, etc were grouped for photographs to be taken back home, and hopefully to show the good time had by all.

Each evening, Sunday to Thursday, and at 1600 on Friday, a Jury meeting was held. The purpose of these meetings was to tidy up details for Team Leaders and Referees, as well as doing the draw for starting positions, and solving any anomalies that arose from the days activities. Each evening the question about "possibility of rain" arose, only to be quickly refuted by the locals. Rain in Townsville at this time of year is scarcer than rain in the rainy season!

A meeting of the Region 3 ARDF committee was also held on 15 July, just after the Jury meeting. This was to discuss future activities of ARDF in the region, and call for submissions for the next Region 3 Championships. At this stage only one submission was made, from the Korean Amateur Radio League (KARL) so, if this decision is passed by the IARU Region 3 meeting, the next Region 3 event will be in Korea, in 1999.

There were several special guests at the Region 3 meeting. **Thida HS1ASC** represented RAST, the Thailand Amateur Radio Society, as well as being Editor and photographer for "100WATTS" their equivalent of *73 Magazine*. The RAST is seeking official membership of the ARDF Committee, and so she was on a fact finding mission. A special thank you to Thida, who rates as one of the most active YLs ever met, as well as being dynamic, efficient and very pretty. If there were any jobs to be done she would always volunteer to lend a hand, including chair collecting, cleaning up, etc. Thida was also an invaluable assistant to Chen Ping in the computing, collating and printing out of draws, results, etc.

Krzysztof (Chris) SP5HS from PZK, the Polish Society. Chris gave details of the DARC (German) submission to hold the 8th ARDF World Championships in 1997, at St Englmar near Straubing, located about 170 km east of Munich, Germany.

Cheryl Wheatley ZL2VCC with Kimiko Akatsu JL1KEA, who received a special award for helping an injured fellow competitor.

Panayot (Pan) LZ1US, Chairman of the Organising Committee for the 11th IARU Region 1 European ARDF Championships to be held in Bulgaria from 1 – 6 September this year.

Kevin Kelly N6QAB/VK2KFX representing the ARRL (Region 2). Kevin was accompanied by his XYL Sue, who hails from Newcastle in VK2. They currently live in Lusby, Maryland on the East coast of USA.

Other visiting Region 3 officials included **Chen Ping BA1HAM; Park Young Soon HL1IFM,** Director IARU Region 3; **Izuta Hiroshi JF1RPZ;** and **Max Wheatley ZL2MAX.** For the foreign societies there were **Yoshio JA1HQG,** Managing Director, the JARL Inc; **Tae-ok Kim HL2AKR,** Director of the Korean Amateur Radio League; and **Madam Chen.**

While the Jury and other meetings were on, the sounds of fast CW permeated throughout as the overseas operators of VI4RDF pounded it out in making contacts back home. The packet station was also used to send greetings around the globe, but in a more sedate (Townsville-like) manner!

The Events

On the days of the events, the start and finish areas had to be set up. Typically an 0600 hrs muster to get the tarps up for shade, chairs out, areas roped off for equipment quarantine, roped off areas for starting lanes, portable toilets in place, water organised and, most importantly, equipment checks. This was in the pre-dawn dark, but the tent pegs went in without any cursing although the ground was very hard (not like Mission Beach!). All the equipment had to be checked, and sent out, set up in the field by the Referees and field tested before any competitors came on to the site, to minimise any chance of unfair advantage. All competitors equipment was impounded until just before they were to start in the draw order set the previous night, and once finished they had to stay in the finish area, which was also located physically some unknown distance away. The ladies and friends of the TARC handled the paperwork at both the start and finish lines, as well as the refreshments.

The 2 metre event was first, on Wednesday, and was started after some small delays. This was located in the scrub on the western side of Mt Louisa in Townsville, just past the edge of new housing developments. A personal note here was that I perhaps never really expected to see any action all day due to the bush and terrain in which we were located. However, some 38 minutes after the start, a crashing noise through the bush, and a competitor appeared, huffing and puffing, antenna in hand, ready to punch his ticket and move on to the next fox. So this was Radio Sports!

A steady stream of competitors, all very thirsty due to the 27 degree "heat" kept on appearing, and some were observed circling around for some time before locating the fox. This, no doubt, was due to the one minute in five that it was transmitting. Each fox site has two International referees, one from TARC and one from another country. So lots of international yarn swapping occurred between watching the competitors punch their tickets. The course default time was set at 140 minutes and so, after the last competitor's start time plus 140 minutes passed, the homing beacon was turned on. When every competitor was

Taken at the Banquet, (l to r) Wally VK4DO, Dorothy Watkins, Federal WIA President Neil Penfold VK6NE, Bob VK4WJ, and Jeanette Mann.

accounted for, the field sites could be dismantled and we returned back to base. The dismantling of base and clearing up of gear was required before we could depart.

Each event was attended by the local Ambulance Service to cover any possible mishap. Unfortunately, Vaughan ZL1TGC got to ride in the ambulance after breaking something in his foot. A JA YL competitor, Kumiko Akutsu JL1KEA, returned back to the start to report finding Vaughan in this sorry state, and in doing so sacrificed her attempt for a good contest result. In recognition of this she was awarded a special plaque at the awards evening "for being a good sport".

Apart from scratches and gravel rashes, there were two other injuries, but considering the speed of some of the contestants, the shale type terrain, and the "trees that grab", especially the thorny "Chinee apple", it all turned out well.

The 80 m event on Friday was held close to the University grounds, but still with shale rock and big hills to be traversed. This went the same way, an early start and pondering whether anyone would actually find us! Both days were what is referred to locally as "another lovely day in paradise", and one Korean was heard saying that "never had he ever seen the sun shine so brightly"!

The Mayoral reception, hosted by the Mayor of Townsville, Tony Mooney, in the Council's Function Room was another social success, with several of the Lady Councillors also present to welcome and join in the camaraderie that just grew and grew. Our overseas guests, following the lead of the locals (and Kiwis) took great advantage of the VK brews being offered around, as well as the copious amounts of "nibblies" available. Townsville has a Sister City in China, and it was with great excitement that Chen Ping BA1HAM was discussing with the Mayor that this was his home as well. The Townsville "Ambassador-at-Large", Graham Jenkinson, was seen in deep discussion with the Japanese, as a delegation visit from our Sister City in Japan was scheduled for the following week. The Mayor formally welcomed us all, and presented to Chen Ping, as Secretary General of Region 3 ARDF Committee, a plaque made of North Queensland timber, with the Townsville City crest carved into it. Chen replied for the rest of us and thanked the Council for their hospitality, with acclamation.

However, the social event of the week had to be the Banquet on the last night. By this time, first name basis was well and truly established, jokes and stories flowed freely over a good meal lubricated by suitable liquids. Laughter and more laughter as various translations were made and corrected, the English interpretations explained and in some cases "strined" severely. All week the use of common Aussie phrases and gestures (the polite ones only!) was taught to any overseas visitor who showed interest "mate". It all started with "cheese" for the photographs and went on to "she'll be right", etc and ending with the characteristic Aussie "yeah"!

There were numerous presentations of medals to the lucky contestants, and proudly some came to VK, with local TARC members, Sally VK4SHE, Ian VK4ZT and Don VK5CC/4 being the proudest of all!

Official presentations between each of the participating Societies and other groups continued. The model house complete with large beam antenna presented by Thida HS1ASC, to TARC President Bob VK4WJ, was a show stopper, especially when Thida told Bob that we had to make the tiny working model rig to go inside it. A specially printed tea towel, showing Townsville flora, and the ARDF logo screened on it, was then presented to all the overseas guests by the members of the TARC. This then started the memento and QSL/business card swapfest that followed, which really set the party mood into full swing.

The music was supplied by "Thunderbolt" (Trevor VK4XTC and XYL Carol), aided by lots of electronics. To help ease their vocal work load, Bob VK4WJ and Ian VK4ZT were first to volunteer their voices, followed by many international helpers.

Saturday was a sad day, as the time for parting rolled on, with airport farewells from early morning. The East Kazakstan and JA groups went at 1100 hrs, followed by the Korean group at 1330. Glen Watkins (Wally's son) looked after the Chinese group for another day, until they and the rest of the Kiwis flew out on Sunday morning.

This has stirred Glen back into his Novice Studies, for like a lot of us in Townsville, we are looking deeply into the purses with hopes to be able to get to Korea in 1999.

Well, what can the TARC do to top this? Who mentioned the World ARDF events in 2000? Keep tuned, and happy hunting!

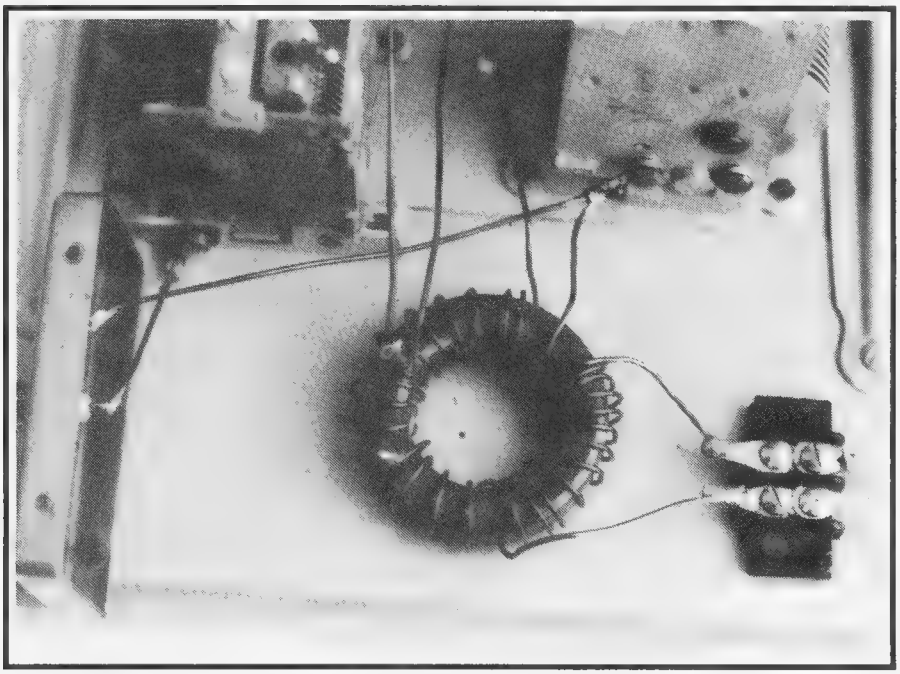
PO Box GE6, Garbutt East QLD 4814

ar

■ Antennas

The Z Match Using a Toroidal Core Coil

Lloyd Butler VK5BR explores an interesting variation in construction of a Z Match ATU.*



The toroidal core as used in the Toroidal Core Single Coil Z Match.

Introduction

The **AR Single Coil Z Match** tuner design using an open coil has now been well documented by articles presented in this journal over the last year or so. More recently I have had a number of queries concerning the possible use of a toroidal core inductor instead of the open coil.

Part of the ability of the Z Match to operate into a wide range of load resistance seems to have been partly dependent on the coupling coefficient in the coil being somewhat less than one. Whether a coil with a ferromagnetic core could be operated efficiently under similar coupling conditions has been open to question. Because of the queries, I decided to build up a toroidal core coil version of the single coil Z match and see how well it could be made to work.

The article describes the toroidal core coil design and discusses the performance of the Z match tuner in which the coil has been incorporated.

Design

To make up the coil I selected the Amidon 50 mm T200 iron powder core with the two mix (red) material. This is the same core as most people use for high power HF balun transformers.

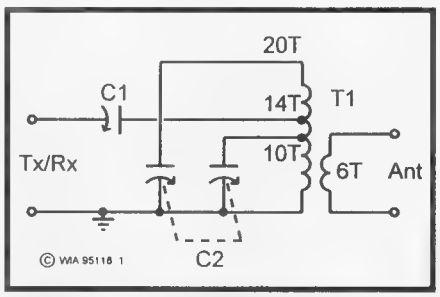


Figure 1 – Circuit diagram of the Toroidal Core Coil Z Match.

Other iron powder cores could be suitable, but I must point out that ferrite cores should be avoided. The ferrite changes permeability with a change in magnetic flux level and hence the coil inductance changes with power level. Iron powder is much more stable than ferrite and, generally speaking, should be used for inductors in tuned circuits and filters operating at high power.

I arranged for the toroidal coil to have a similar primary inductance to the AR open coil unit and set the coil taps to provide the same ratio of turns. The secondary was also proportioned on the same basis. To achieve the same inductance (a little over 5 μH), 20 turns were placed on the primary and taps were connected at 14 and 10 turns. The secondary of six turns was interwound with the first six turns of the primary, commencing from the cold end.

The Z match circuit and coil arrangement is shown in Figures 1 and 2. In winding the coil, the primary of 18 SWG enamel wire is evenly spaced around the core. This leaves a gap between turns in which the secondary of similar wire can be fitted in a second winding operation. To make a tap, one method is to clean off about a centimetre of the enamel on the wire at the appropriate point and fold half the cleaned part back on itself to form a terminal which is soldered. Winding is then continued.

Another method of forming the tap is to cut the wire at the tap point with a short end which is cleaned of enamel. The end of a new piece of wire is also cleaned of enamel and twisted with the other. Winding is then continued with the new piece of wire. The twisted wires are soldered to form the tap terminal.

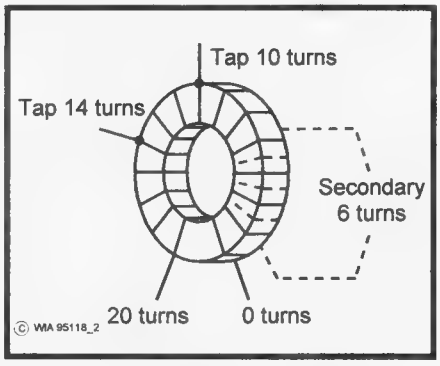


Figure 2 – Toroidal coil assembly.

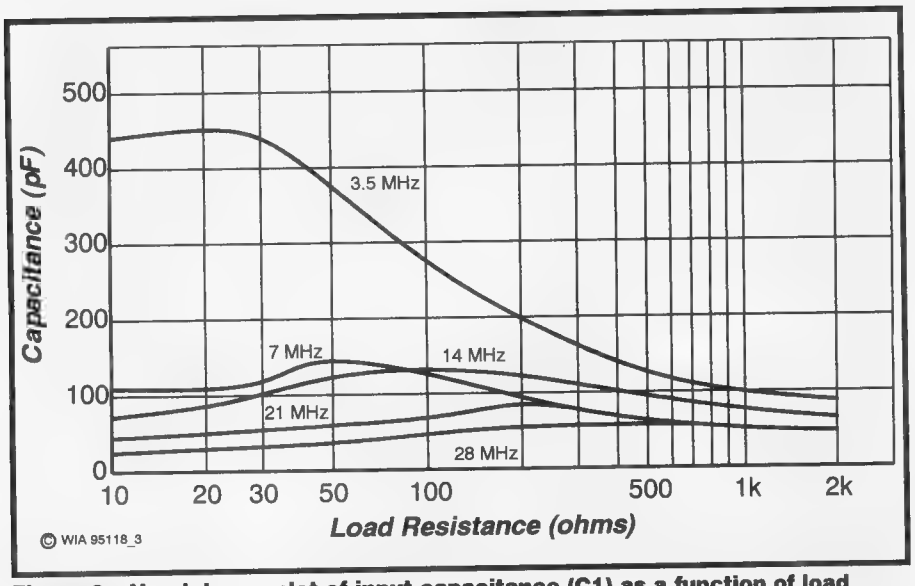


Figure 3 – Hand drawn plot of input capacitance (C1) as a function of load resistance.

Test Results

In testing the open coil AR Single Coil Z Match, load range tests were carried out over the resistance range of 10 to 2000 ohms at frequencies of 3.5, 7, 14, 21 and 28 MHz. The same tests were repeated using our toroidal core coil unit and this matched over the whole range, as did the open coil unit. Tuning curves, Figures 3 and 4, plot the capacitance needed in C1 and C2 over the load range. The curves show that the maximum capacitance for input capacitor C1 is 450 pF and for shunt capacitor C2 is 260 pF.

So far so good, but the big question concerns efficiency and possible loss in the core. In a previous article (*Amateur Radio*, September 1995) I described how I measured efficiency of a number of Z match units at 1,8, 3.5, 7 and 14 MHz. I have repeated the tests for the toroidal coil unit, refining the technique a little to extend the tests up to 28 MHz. For detail of the measurement technique, you are referred to the previous article. The results of the tests on the toroidal coil unit are given by Figure 5. This shows that efficiency is quite good over most of the load range at 3.5 and 7 MHz. At higher frequencies the efficiency falls and is particularly poor at 28 MHz.

In my opening paragraph I mention the coupling coefficient (K) of the coil. I carried out a measurement on the toroidal coil at 3.5 MHz and this indicated a value of K equal to 0.5. By comparison, open coils have been previously measured at K around 0.65. The low value of K assists in extending the load range of the Z match (this was discussed in my article in *Amateur Radio*, May 1989). In the open coil unit, the low value of K does not appear to upset the efficiency unduly. However, I suspect that it is not the ideal condition for low loss in the case of the powdered iron core.

In my opinion, loss of efficiency in the toroidal core coil is of more concern than in the open coil, Suppose we operate at a point on the efficiency curves which shows an efficiency of 60%. This represents about 2 dB loss which would be barely noticeable on the air. However, the 40% of power lost is probably dissipated in the iron powder core and, at high power, this might be sufficient to shatter the core. For this reason, I would not be too enthusiastic to operate with high power when efficiency is low.

Another factor, which could set power limits on the toroidal core coil, is the insulation resistance of the winding wire. For certain load conditions, quite high voltages can be developed in the Z Match. For example, with a 2000 ohm load at 3.5 MHz and a power of 100 watts, around 1000 volts is developed at the top end of the coil primary with potential to break down to the core. For the same load condition, around 600 volts is developed across the secondary with potential to break down to primary or to the core.

Of course, lower resistance loads produce lower voltages. For example, at 100 ohms load, voltage at the primary is around 300 and across the secondary around 140. However, one has to allow for all possible load conditions and perhaps an open circuit output condition. An arc-over condition in a tuning capacitor doesn't do much damage, but burnt insulation in the coil winding means a rewind.

There are various grades of enamel and other synthetic insulation on winding wire and I have not been able to

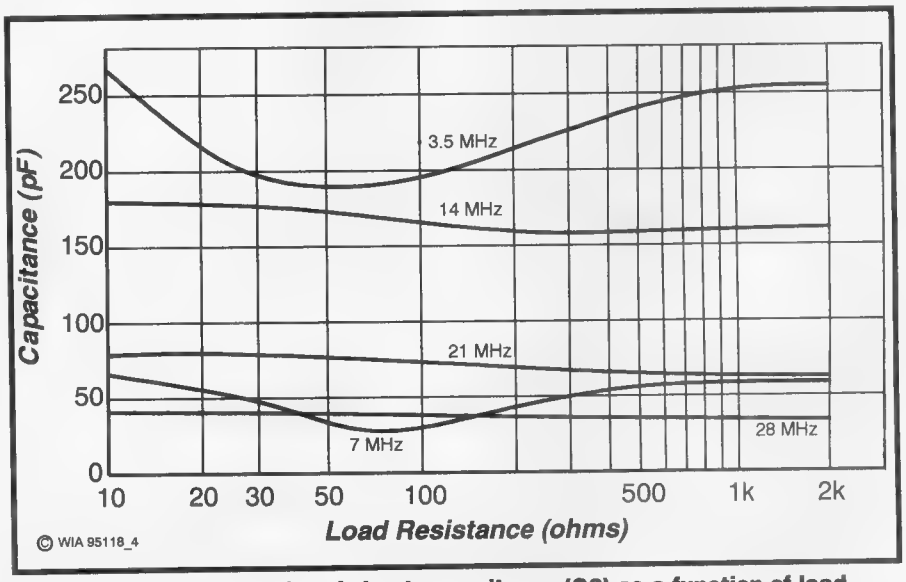


Figure 4 – Hand drawn plot of shunt capacitance (C2) as a function of load resistance.

obtain much information on the voltage ratings. General opinion seems to be that we are really testing our luck if we apply much more than a few hundred volts across the usual winding wire insulation. In my test unit I have used ordinary winding wire and this type of wire is probably quite OK for low power use. However, one might be well advised to use a better insulated wire for powers around 100 watts or more. Using the 18 SWG enamel wire, there is spacing between the turns of the windings and plenty of room for an increase of insulation thickness around the same diameter wire.

A recommendation for high voltage in one of the Amidon catalogues is to use Thermoleze insulated wire. They state that this has a very tough vinyl-like insulation having a voltage break-down potential of more than 2000 volts at a temperature of 180 degrees Celsius. They say that certain sizes of the wire are a stock line at Amidon, so perhaps the local agents, Daycom Communication Pty Ltd, could help with supply.

Considering the factors I have discussed, there are clearly reservations about the use of this type of coil design in the Z match on the higher HF bands and at high powers. However, it takes up a lot less space than the open coil and could be attractive to some of the QRP operators who use only low power on 3.5 and 7 MHz where high efficiency is achieved. It is interesting to observe that if only these two bands are to be used, only the top section of C2 is required and there is no need for the split stator tuning capacitor unit. In this case, the circuit can be simplified to the diagram of Figure 6. This makes a slight difference to the curves for 3.5 and 7 MHz shown in Figures 3 and 4, but the whole load range is still covered. The arrangement also just tunes to the edge of the 10 MHz band but, if this band is used, it might be desirable to drop off one turn from the top of the primary. With the coil turns reduced, a little more than the maximum specified capacitance of 260 pF for C2 might also be needed still to tune 3.5 MHz.

For the QRP operator, there is also the possibility of using an iron powder core with the same two mix (red) material, but a little smaller than the 5 cm T200 I have used. Some smaller Amidon types are T157 (4 cm) and T130 (3.3 cm). I have not tried these but winding calculations to the nearest full turn are as follows:

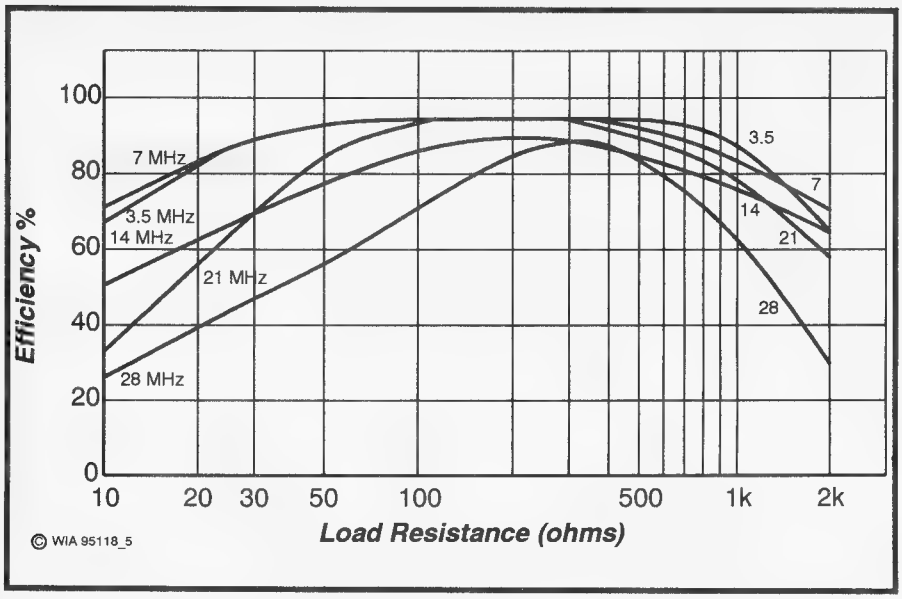


Figure 5 – Hand drawn plot of power efficiency using the toroidal core coil.

For the T157, use 19 turns on the primary tapped at 13 and 9 turns with a 5 turn secondary.

For the T130, use 21 turns tapped at 15 and 11 turns with a 6 turn secondary.

It is advisable to use the largest wire gauge possible, but in using a smaller core, there could be a problem in fitting in the 18 SWG wire specified in my diagram. I anticipate that it would be necessary to use a lighter gauge wire on the smaller core.

Conclusions

A Single Coil Z Match Tuner design using an iron powder toroidal coil has been described. The design achieves a wide load resistance matching range as did the open coil AR Single Coil Z Match. The efficiency is good at 3.5 and 7 MHz but deteriorates at higher frequencies.

Some concerns have been expressed concerning power dissipation in the core when efficiency is low. This could lead to damage of the core when the unit is used at high power. The possibility of breakdown of winding wire insulation when power is raised has also been considered.

For QRP users, who mainly operate on the 3.5 and 7 MHz bands, the toroidal core coil is an attractive proposition. Combined with miniature tuning gangs, which we have proved will work without arcing up to 25 watts, a very compact and efficient low power Z match unit can be constructed for 3.5 and 7 MHz. Although less efficient on higher frequency bands, the unit can also provide a useful service on these bands when required.

For higher power users, I think it is safer to stick with the open coil design.

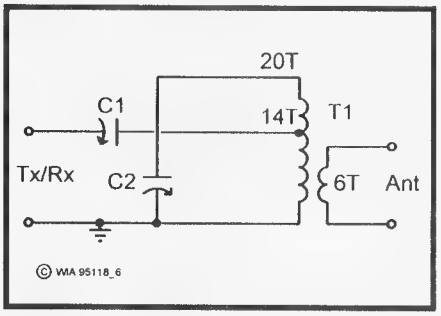


Figure 6 – Matching circuit for 3.5 and 7 MHz only.

References

1. Lloyd Butler VK5BR – AR Single Coil Z Match – Amateur Radio,April and May, 1993.

2. Lloyd Butler VK5BR – Efficiency of the Z Match – Amateur Radio, September 1995

3. Lloyd Butler VK5BR – Analysis of the Z Match Antenna Tuner – Amateur Radio, May 1989.

18 Ottawa Avenue, Panorama SA 5041

ar

■ Antennas

The LENFO Revisited

Ian Berwick VK3ALZ has another look at an antenna designed over 45 years ago.*

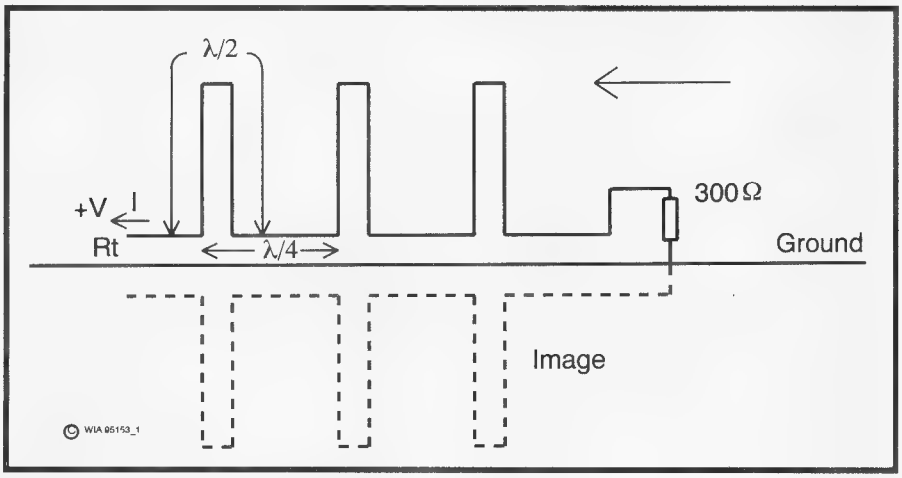


Figure 1 – Marconi-Franklin array.

Introduction

This story starts on page 3 of the May 1948 issue of *Amateur Radio*. Therein is an article entitled **Series Phased Aerial Arrays** by H K Love VK3KU (by way of explanation, H K Love established Kingsley Radio which built the AR7 receiver). In the article, the Marconi-Franklin series phased array is described and Howard Love describes how he modified the Franklin array to form beams for 10, 6 and 2 metres.

The final step in the evolution of the LENFO comes on page 14 of the January 1950 issue of *Amateur Radio*. An article entitled The **LENFO Series Phased Array,** by Len Jackson and Col Gibson VK3FO, describes how they modified the Howard Love beam to form the LENFO beam. In the following notes, I shall endeavour to analyse these antennas and provide an assessment of the LENFO in the light of current antenna requirements.

Analysis

Series Phased Array (Marconi-Franklin)

Refer to Figure 1. This array is a vertically polarised end-fire array. The driven elements are folded unipoles fed in series and working against ground. The terminating resistor maintains directivity. The direction of fire is away from the resistor. The power radiated by successive elements is in the ratio of 1, 1/2, 1/4, 1/8, 1/16, ... etc.

If R is the radiation resistance of the first element, then the effective radiation resistances of the set is

R, R/2, R/4, R/8, R/16, ...etc.

This yields for the radiation resistance of the set,

Rt = R+R/2+R/4+R/8+R/16 ...etc.

This is a geometric series whose sum is:

$$Rt = \frac{\left(1-\frac{1}{2^n}\right)}{\left(1-\frac{1}{2}\right)} = 2R$$

Now R is approximately 150 ohms. Hence, Rt is approximately 300 ohms.

The Marconi-Franklin array will not work when removed from above ground into free space because the images are lost (see Fig 1). Howard Love fixed this problem by replacing the images with real folded unipoles (see Fig 2). Note that 1/8 of the power is dissipated in R1.

This antenna has the same problem as the Marconi-Franklin in that the power radiated by each element is different. However, for optimum gain, each element should radiate the same power.

LENFO Beam

Len Jackson and Col Gibson replaced R1 with a folded dipole to achieve a little more gain (see Fig 3). They claimed 10 dB forward gain and 20 dB front to back ratio (F/B) for their four element LENFO. Elements have to be in pairs for a unidirectional LENFO, ie 2, 4, or 6, etc.

For a comparison between the Marconi-Franklin and the LENFO, refer to Figs 1 and 4. With the Marconi-Franklin, all radiation comes from the set of real folded dipoles working against a real ground. A set of imaginary images is used to account for the vertical (H) field resulting from ground reflection.

With the LENFO, a valid model for this array requires the upper and lower sets of real folded unipoles to work against an imaginary neutral or ground.

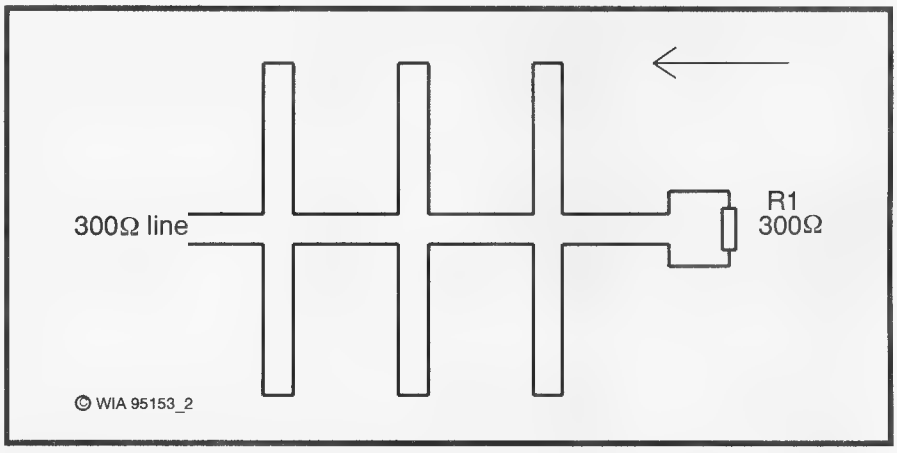


Figure 2 – H K Love array.

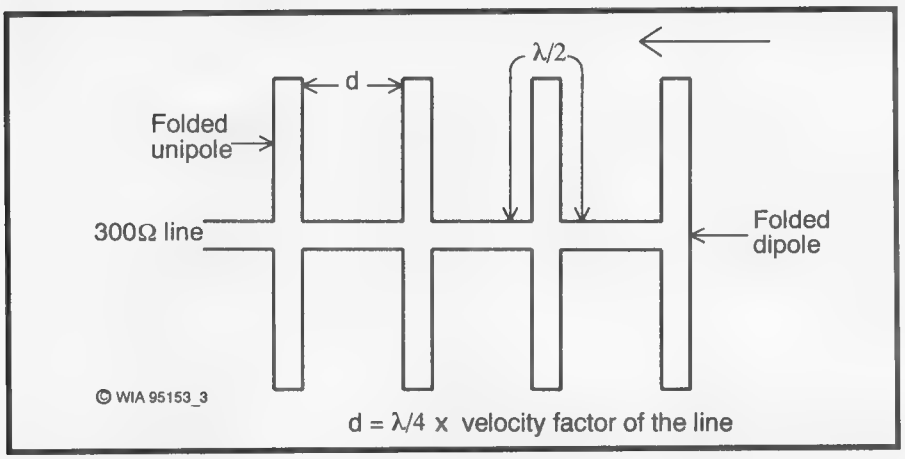


Figure 3 – LENFO beam. This is a four element array although there are six folded unipoles and a folded dipole.

With balanced excitation, each set radiates half the power. The effective radiation resistances of the upper set are 75, 37.5, 18.75, and 18.75 ohms respectively. The sum is 150 ohms. A similar situation exists for the lower set. The total radiation resistance is therefore 150+150 = 300 ohms.

At any instance, the upper set of folded dipoles are positive and the lower set are negative or vice versa. Hence, we have real and image pairs, each pair being called one element for convenience. In order to check the claimed LENFO performance, I have derived expressions for the E and H field strengths based on methods given in Kraus, Chapter 4 (see Ref 1).

We have for the four element LENFO, the E plane field strength,

$$E = \frac{Cos\left(\frac{\pi}{2} * Cos\left(\frac{\pi}{2} - \Phi\right)\right)}{Sin\left(\frac{\pi}{2} - \Phi\right)} * \sqrt{\frac{3}{2} + \sqrt{2} * Cos\psi_0} * \sqrt{\frac{5}{4} + Cos\psi_1}$$

Where $\psi_0 = \left(k * \frac{\pi}{2} * Cos\Phi - \frac{3\pi}{2}\right)$

and $\psi_1 = (k * \pi * Cos\Phi - \pi$

k is the velocity factor of the phasing sections. Refer to Fig 5 for more detail. The H plane field strength is the same as the E field without the term

$$\frac{Cos\left(\frac{\pi}{2} * Cos\left(\frac{\pi}{2} - \Phi\right)\right)}{Sin\left(\frac{\pi}{2} - \Phi\right)}$$

Note that the patterns are given for free space only.

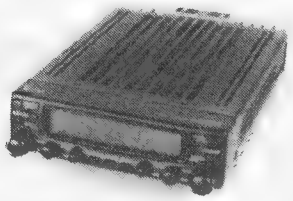
A Basic program was written to compute the field strengths for every 10 degrees, and for values of k = 1.0, 0.9, 0.65. The results were:

k = 1

E plane 3 dB beamwidth = 66 degrees

H plane 3 dB beamwidth = 116 degrees

$$Gain = 10 * Log_{10}\left(\frac{41000}{66 * 116}\right) = 7.3dBi$$



Radio and Communications

Incorporating radio and CBFitter

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September's **RADIO and COMMUNICATIONS** magazine is jam-packed with goodies for the active amateur. The HF DX not working too well for you, eh? Well, how about you *do* something about it — build the biggest log-periodic you're ever likely to see! And when you finish doing that, why not work a few two metre repeaters — in the USA!

As usual, the magazine is bursting with quality articles...

- Review: Icom IC-2710H. Last month's review rig went well but was hard to use. This is easy to use, but...
- Construction project — build a synchronous detector for AM. Simple yet effective.
- Review: it's scanner versus scanner in this three-way shoot-out. Which one works best?
- So much for satellites... we check out the latest technology and get told it's "old hat"!
- Win a great Garmin GPS receiver. Read the review, then win the receiver!
- Choosing the right antenna for the job. We examine all the antenna options for amateurs.
- Amateur modifications, *three* DX columns and more... all the best regulars every month!

Don't miss out — **RADIO and COMMUNICATIONS** is great reading for amateurs!

Check your local newsagent today!

(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they *work* so well. We have yet more great bargains for you to drool over — but hurry, these rippers go *fast*!)

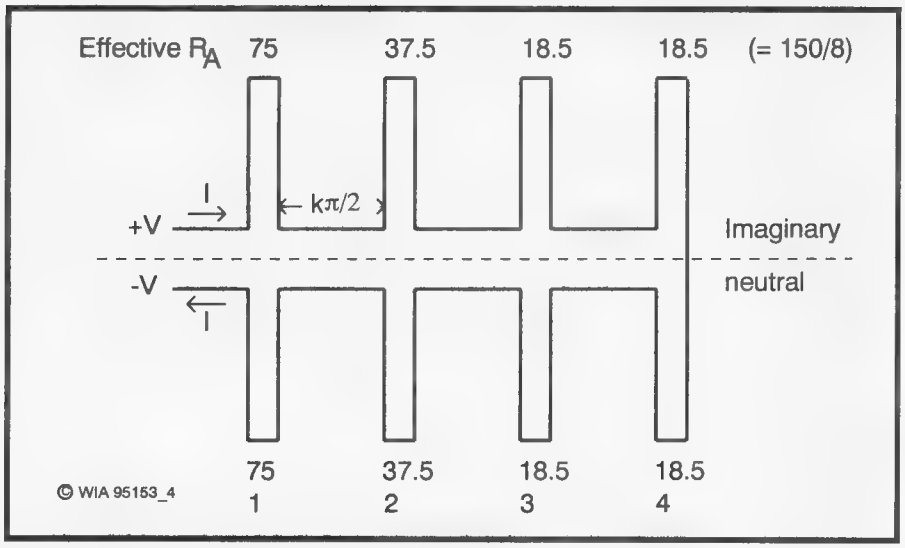

Figure 4 – LENFO model.

F/B ratio = 15.3 dB
k = 0.9
E plane 3 dB B/W = 62 degrees
H plane 3 dB B/W = 110 degrees
Gain = 7.8 dBi
F/B ratio = 14.5 dB
k = 0.65
E plane 3 dB B/W = 60 degrees
H plane 3 dB B/W = 98 degrees
Gain = 8.4 dBi
F/B ratio = 9.6 dB
The E plane polar plot for k = 1 is shown in Figure 6.

The advantages of the LENFO are wide bandwidth, simplicity, no fussy tuning, and a direct match to 300 Ohms.

The disadvantage of the LENFO is that the law of diminishing returns sets in rapidly, ie the gain does not increase very much with increasing number of elements due to the unequal excitation previously discussed.

Some suggested uses for the LENFO are:

1. Two metre band. A four element LENFO cut for 146 MHz, and mounted so that it can be rotated 90 degrees on its axis by ropes from the ground, should cover all frequencies and modes with low VSWR.
2. Six metre band. Same as for 1. above.
3. 10 metre band. A major problem with Yagi antennas on this band has been the inability to cover more than 1/4 of the bandwidth with low VSWR. A LENFO cut for 28.7 MHz should fix this.
4. 70 cm ATV. Stack four, four element LENFOs in a square for 14 dB gain, 7 MHz bandwidth and 75 ohms at the feedpoint.

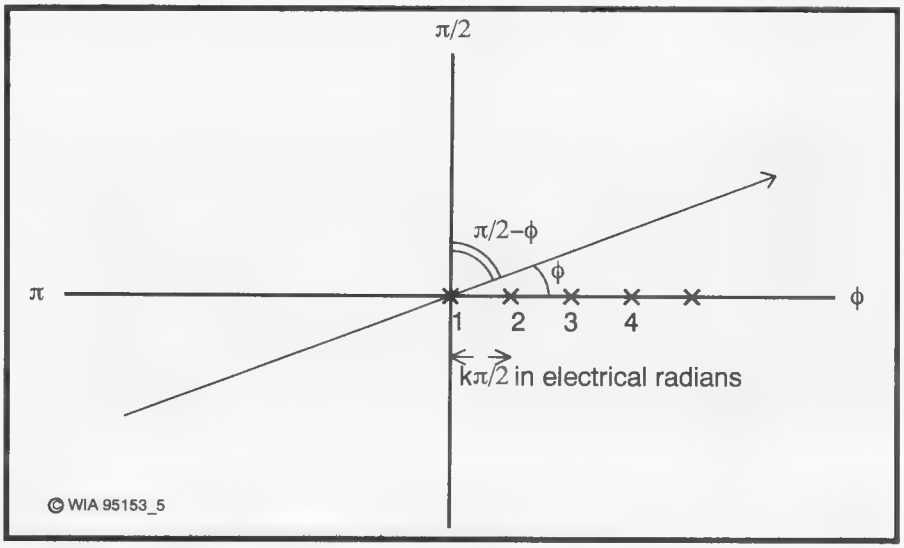

Figure 5 – Position of the elements for the E plane plot.

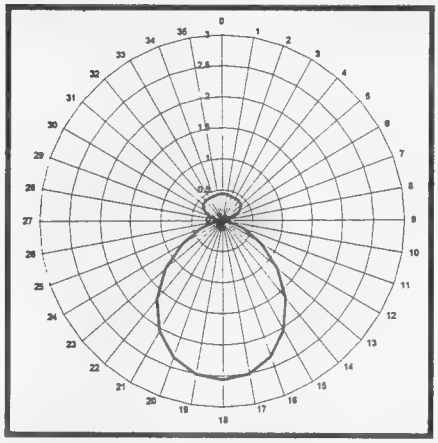

Figure 6 – Four element LENFO computed E plane field. K = 1. Note: Amplitude elements are relative field strength, not dB; and maximum gain is in direction of the feed point.

For precise dimensions of the LENFO, refer to the original article. My thanks to VKs 3JO, 3WYN, and 3ZIP, for assistance with this project.

Reference 1

Theory of End fire Arrays, KRAUS J D, ANTENNAS, Chapter 4.

107 Loongana Ave, Glenroy VIC 3046

WIA News

VK Team Goes Well in Radiosport Championships

The first team of VK amateurs to compete in the recent 1996 World Radiosport Team Championships (WRTC-96) acquitted themselves well, making 1822 QSOs for a score of 343,604 points, well above the lowest scoring team who made 1615 contacts for 185,070 points.

As reported in last month's *WIA News*, Martin Luther VK5GN and David Pilley VK2AYD joined 52 two-person teams of HF operators from 30 countries in San Francisco for the contest held over 13-14 July. Martin and David operated W6Z.

Top scoring team was KR0Y and K1TO, operating W6X, for 2457 QSOs and a score of 761,829 points.

Congratulations to Martin VK5GN and David VK2AYD.

■ Operating

1996 Remembrance Day Contest Opening Address

The 1996 Remembrance Day Contest Opening Address was delivered by Air Marshal Les Fisher, Chief of the Air Staff.

Air Marshal Les Fisher was born in Parkes, NSW in 1941. He joined the RAAF in January 1960 and completed navigator training in 1961 and later pilot training in 1965.

Air Marshal Fisher had numerous operational flying tours in maritime patrol aircraft with No 10 and 11 Squadrons. He filled all executive positions with No 11 Squadron and has flown over 5000 hours.

Staff appointments include Maritime Staff Officer, Headquarters Operational Command; Operational Requirements Maritime, Air Force Office; and Director Joint Planning, Headquarters Australian Defence Force.

In 1976 he was posted on exchange duty with the USN at Moffett Field California, as the Plans and Readiness Officer for Commander Patrol Wings Pacific. For his achievements in this post, he received a Letter of Commendation from the United States Secretary of the Navy.

Command appointments include Officer Commanding RAAF Base Townsville in 1986, Commander Tactical Transport Group in 1987, Commander Maritime Patrol Group 1988, and Commandant Australian Defence Warfare Centre in 1990.

Air Marshal Fisher was promoted to Air Vice-Marshal on 7 November 1991 and assumed the appointment of Assistant Chief of the Defence Force (Operations). In November 1993, Air Marshal Fisher was appointed Deputy Chief of the Air Staff. On 30 November 1994 he assumed the appointment of the Chief of the Air Staff.

Air Marshal Fisher is a graduate of Joint Services Staff College. He was appointed a Member of the Order of Australia in 1987 and an Officer of the Order of Australia in 1993.

Air Marshall Les Fisher.

Air Marshal Fisher is married to the former Jan Butcher and they have two daughters, Amanda and Kym.

The Opening Address

"As Chief of the Air Staff, I am honoured to have been asked to give the opening address for this Remembrance Day Contest, which marks the 51st anniversary of the end of World War II. Although over half a century has passed, there remains a strong desire in our nation to celebrate the hard-won victory and, with even more resolution, to commemorate those who lost their lives. And so it should be. "We ***will*** *remember them!"*

The Wireless Institute of Australia held its first Remembrance Day Contest in August 1948 to perpetuate the names of those 26 radio amateurs who lost their lives in the service of their country. This annual event focuses on their sacrifice.

This year has been a significant year for the Royal Australian Air Force. It marks the 75th anniversary of the founding of the Service. As such, 1996 has been a year for celebrating past achievements and a year for remembering the sacrifice of former members of the Service. I note that 15 of the 26 radio amateurs who lost their lives in the war were members of the Royal Australian Air Force. As the current head of that Service, listeners will understand how gratified I am to have been invited to open the Remembrance Day Contest this year.

I am not the first Air Force officer to open this Contest. In 1971, it was Air Marshal Sir Richard Williams who enjoyed the honour. Williams had a remarkable career in the Air Force. It spanned a period when aircraft developed from frail, flying airframes barely able to become airborne to sophisticated weapons of war capable of flying at speeds approaching the speed of sound.

Williams had originally joined the Army in 1912, but two years later he was selected to undertake training as a military pilot at the first flying course conducted at Point Cook. There were four students on the course and Williams was first to qualify as a pilot, just 14 weeks after the course had started.

In 1916, Williams was sent to the Middle East on active service with the Australian Flying Corps. His first aircraft was a British-made BE2c and he recorded in his memoirs that "in those days we had no means of communicating between aircraft, or to base".

They were elementary aircraft with open, two-seat cockpits. Williams recalled that the pilot and his navigator communicated with each other "by shouting or passing notes".

By 1918, there had been many improvements in military aircraft. Wireless transmitters were standard equipment, permitting messages to be sent from the air to ground bases in Morse code – 100 kilometres was considered to be the maximum effective range. But there was still no way of communicating by wireless signals from the ground to the air, primarily because the noise level in open cockpits drowned out the sound of radio receivers. Ground

to air signalling therefore had to rely on rudimentary methods which included laying out strips of white cloth on the ground.

Despite their limited communication capability, aircraft had proved that they could be employed effectively in a range of operational roles. These included aerial combat, reconnaissance, strategic bombing, ground attack, observation for artillery fire, aerial photography and aerial re-supply. But World War I had also demonstrated that, if aircraft were to be used effectively as a weapon of war, then they had to be organised and controlled as a distinct fighting force. As a result, the Royal Australian Air Force was established as Australia's third fighting force on 31 March 1921. The leaders of this new Service came from the men of the Australian Flying Corps, including Sir Richard Williams who was to become the first Chief of the Air Staff.

The early leaders of the Air Force realised that the achievement of the full potential of the aircraft as a weapon of war was directly related to the ability to develop and exploit communication by wireless. Therefore, when an officer in the Citizen Air Force, Flight Lieutenant Howard Kingsley Love, submitted a proposal to the Air Board in 1929 to organise amateur wireless operators to support the RAAF, it was readily approved. Love, who was a professional radio engineer, was also the president of the Wireless Institute of Australia, Victorian Division. Under the sponsorship of the Institute, amateurs who operated licensed wireless transmitting stations were recruited to form the Wireless Reserve.

On joining the Reserve, members agreed to undertake prescribed training while making their services and equipment available to the RAAF to assist in meeting communications commitments.

The RAAF provided log books and message forms but, more importantly for future wartime mobilisation, the RAAF trained the operators in approved methods and procedures. Training was generally conducted twice each week during scheduled wireless telegraphy watches.

By mid-1939, there were 155 members of the Wireless Reserve. All of these amateur radio operators were called up for active service when World War II broke out. This explains why such a high proportion of those men who are the focus of this annual commemoration were members of the RAAF. It also helps explain why the RAAF was quick to establish the foundation for an efficient signals organisation which provided critical communications support throughout World War II. These amateur radio operators brought years of experience and knowledge into the service of their country.

Just how valuable this could be was illustrated by an incident involving Sergeant James Colthrup, a former amateur radio operator.

In 1940, James Colthrup was the wireless/telegraphy operator on an RAAF aircrew. While undertaking an aerial reconnaissance mission, the transmitter in Colthrup's aircraft failed to operate. The former amateur radio operator quickly discovered that a faulty condenser was the cause of the transmission failure. Drawing on his knowledge of radio physics, Colthrup ingeniously manufactured a temporary condenser using paper and tinfoil from a cigarette package. As a result, radio communications were established and the aircraft completed its operational task.

Sadly, Colthrup was not to survive the war. He is one of the 26 former radio amateurs we are remembering today.

The vital role of aircraft in war was firmly established during World War II; the air war was no longer an adjunct to the surface battle. There had been rapid improvements in the design and manufacture of the aircraft itself, and aircraft performance as a weapon platform also achieved new heights with the development of radio, electronics, radar and navigational aids. Integration of the two sciences of aviation and wireless had produced a powerful weapon capable of fulfilling a number of war-fighting roles. Australia's dedicated band of pre-war radio enthusiasts had played a small, but not insignificant, part in this.

I have much pleasure in declaring the 1996 Remembrance Day Contest open."

ar

QSP News

JOTA – 19/20 October 1966

The first National JOTA Opening ceremony was broadcast in 1974 from Camp Cottermouth in Canberra over the then new National HQ Scout Station VK1BP. In 1976 the station was set up in the grounds of Government House, and in 1995 at the new ACT Branch Radio Activities centre at Garran.

VK1BP will continue the tradition this year but we will also be using a number of other stations, including national callsigns VK6SAN and VK6GGN, hopefully to cover this vast continent better.

The Opening ceremony will be broadcast at 0400 UTC on JOTA Saturday, 19 October in Canberra from VK1BP on 7.090 MHz and 21.190 MHz; in Perth from VK6SAN on 14.190 MHz (beaming east), from VK6GGN on 14.125 MHz (beaming north), and from VK6SAA on 3.600 MHz; and in Townsville on 3.590 MHz and 7.080 MHz from VK4SPP. The ceremony will also be broadcast on local 2 metre stations or networks, such as VK1BP in Canberra, VK4SPP in Townsville on the VK4RAT repeater, VK6SAN in Perth on the WIA news net, VK7SAA in Hobart, and in Sydney.

Callbacks will be taken on all frequencies used and the results analysed to decide if this enhanced network, or part thereof, is successful.

Please listen to local WIA news or watch packet bulletins for local information. JOTA queries can be raised on the National Scout Nets from VK6SAN at 0200 UTC on the first, third and fifth Sundays on 14.190 MHz, the second Sunday on 21.190 MHz and the fourth Sunday on 28.590 MHz, and on packet to VK6HU@VK6WFH.

Peter Hughes VK6HU
National JOTA Co-ordinator

Technical Abstracts

*Gil Sones VK3AUI**

Antenna Comparison

The relative performance of the various HF vertical aerials is of interest to many. Also the relative performance of the vertical compared to a wire aerial or a beam is of interest. Many live in situations where space for aerials is at a premium and the compact vertical offers an attractive solution. However, it is hard to find an objective comparison.

Between 1991 and 1995 there appeared in the RSGBs monthly magazine, *RadCom*, a number of reviews of readily available verticals by the one reviewer Peter Hart G3SJX. There was also a comparison of one vertical, the Butternut, with wire aerials and a triband beam. When gathered together these reviews provide the basis for a comparison. The verticals and the wire aerials and beam were all compared with the Butternut. The tests were not all done on the same occasion but they do provide an indication of relative performance.

The verticals reviewed were the Butternut HF6V-X with accessory resonators in *RadCom*, March 1991, the MFJ-1798 in *RadCom*, September 1995, the Voyager DX-IV and the Cushcraft R7 in *RadCom*, July 1992, and the Challenger DX-VI in *RadCom*, December 1991. The comparison of the Butternut to the wire aerials and the beam appeared with the Butternut review in *RadCom*, March 1991. The Butternut HF6V-X was reviewed with accessory resonators which would make it similar to the HF9V.

All the verticals use different systems to operate. Two of them are designed with an integral counterpoise. The Butternut requires either radials or a suitable earth and uses resonators in a different manner to the usual trap vertical. The Voyager and the Challenger are both elevated feed designs and require radials. The MFJ-1798 is an inverted vertical with the counterpoise at the top and does not require radials. The R7 is called a half wave design and includes its own small counterpoise of four 1.2 m rods.

Table 1

Bandwidth and Height

The bandwidth is given for 2:1 VSWR or the highest VSWR in the Band.

Antenna	Butternut HF6V-X (with acc)	Cushcraft R7	MFJ MFJ-1798	Challenger DX-VI	Voyager DX-VI
Height	7.8 m	6.9 m	6.1 m	9.6 m	13.7 m
1.8 MHz	14 kHz (with Acc Kit)	——	——	——	70 kHz
3.5 MHz	31 kHz	——	12 kHz	130 kHz	1.9:1
7 MHz	180 kHz	87 kHz	21 kHz	1.09:1	1.6:1
10 MHz	1.05:1	54 kHz	340 kHz	——	1.7:1
14 MHz	1.3:1	204 kHz	1.4:1	2.2:1	——
18 MHz	2.2:1 (See Text)	1.6:1	1.2:1	——	——
21 MHz	1.7:1	2:1	1.4:1	2.1:1	——
24 MHz	1.1:1	1.4:1	1.5:1	2:1	——
28 MHz	1.5:1	1.19:1	880 kHz	2:1	——

The performance of the verticals is given in Tables 1 to 3.

The Butternut tested was a Model HF6V-X but was fitted with accessory resonators which brought it to the HF9V-X specification. The antenna was also fitted with a 160 metre kit. The aerial requires radials and radial kits are available. On 18 MHz the VSWR could be improved but this resulted in worsened VSWR on 21 MHz and 14 MHz.

The results of on air tests are contained in Table 2. These results are to some extent subjective and are averaged over many tests with a variety of stations. They do, however, give some idea of performance and they are all with reference to the Butternut. The differences are not great. The value of an S point is open to some question in view of the somewhat variable number of decibels assigned to it in some quarters.

The verticals are all fairly close in performance. The Challenger was only down on the Butternut at the resonance point of the Butternut but had a wider bandwidth. The results are subjective and rely on the experience and observation of the reviewer. Peter Hart G3SJX is a very experienced reviewer and operator.

During the course of the reviews of the verticals, Peter Hart G3SJX had the opportunity to compare the Butternut with some wire aerials and a three element triband beam. The results were published in *RadCom*, March 1991. The results are shown in Table 3.

The value of the beam lies not only in the signal gain but in the rejection of interference from unwanted directions. The gain may appear modest, but if an S unit is rated at 6 dB this is equivalent to a 400 watt linear compared to a barefoot 100 watt transceiver.

There is also a problem with ground mounted verticals in suburbia as they are then down amongst the clutter of buildings. This can lead to TVI and problems due to interference. Raising the vertical above the buildings can help, but it then makes the aerial fairly visible and may incur the wrath of neighbours and the building inspector. The use of a counterpoise or radial system is required with many verticals if they are mounted above ground level. The R7 and the MFJ

Table 2

Relative Performance with Reference to Butternut Vertical

Differences given in S units

Antenna	Butternut HF6V-X (with acc)	Cushcraft R7	MFJ MFJ-1798	Challenger DX-VI	Voyager DX-VI
3.5 MHz	ref	——	equal	-1 to 1.5 S (see text)	+0.5 S
7 MHz	ref	equal	equal	equal	equal
10 MHz	ref down	marginally	equal	——	——
14 MHz	ref	equal	equal	equal	-1 to 2 S
18 MHz	ref	+0.25 to 0.5 S	+0.5 S	——	——
21 MHz	ref	equal	equal	-1 to 2 S	——
24 MHz	ref	+1 to 2 S	+0.5 S	——	——
28 MHz	ref	equal	marginally down	-0.5 S	——

Table 3

Comparison of Butternut to Wire Aerials and Triband Beam

Differences given in S units

Antenna	Butternut HF6V-X (with acc)	3 El Triband 14 21 28 MHz	Sloping 7 MHz Dipole	Inverted L 120 ft H 70 ft V	Inv V 250 ft Apex 40 ft
3.5 MHz	ref	——	——	+0.5 S	+1 S
7 MHz	ref	——	equal	——	——
14 MHz	ref	+1 S	——	——	——
21 MHz	ref	+1 to 2 S	——	——	——
28 MHz	ref	+1 to 2 S	——	——	——

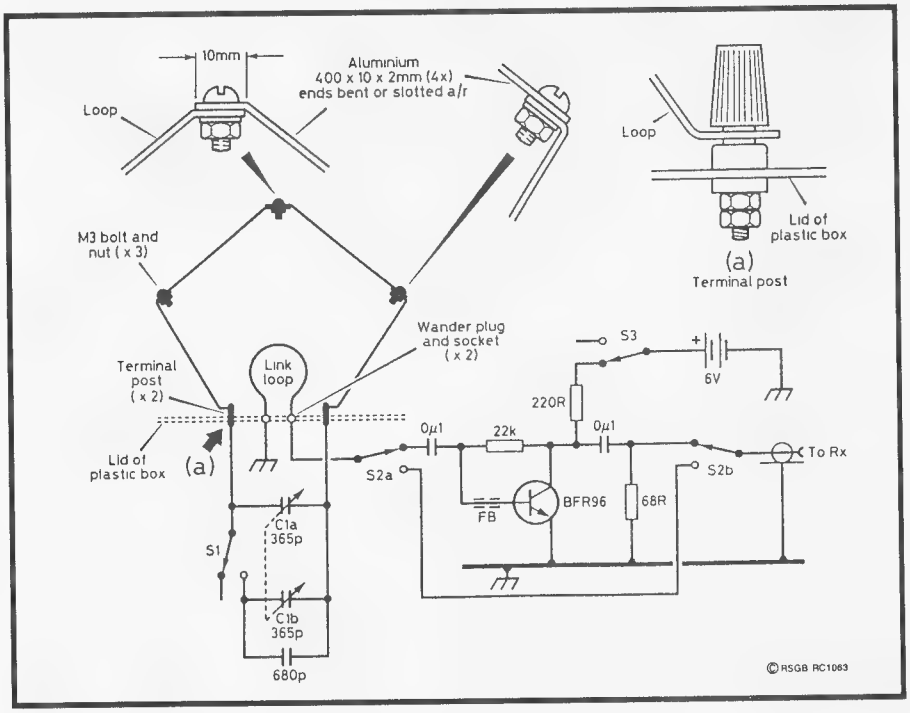

Fig 1 - PA0KSB Receiving Loop and Preamplifier.

1798 have integral counterpoises. The Butternut has accessory radial and counterpoise kits.

Receiving Loop

A useful receiving loop was described in *Electron,* January 1995 by Klaas Spaargaren PA0KSB and a translation appeared in the *RadCom* Eurotek Column of Erwin David G4LQI in July 1996. The loop is an active receiving design which can be used between 3.5 and 29 MHz.

The loop design sprang from the need for something better than the usual whip for a portable receiver. The loop can operate without a counterpoise or radials and is compact. There is the need to tune it but this is not a large problem.

The loop was made from aluminium strip 10 mm x 1.6 mm and has a circumference of 1.6 m. It is made out of four 400 mm lengths which are bolted together. The link coupling loop is made of a 45 cm length of stiff wire. Tuning is by a two section broadcast gang as used in older broadcast receivers. One section tunes 7 to 29 MHz and, with the second section switched in parallel and a 680 pF capacitor in parallel, the range 3.5 MHz to 5 MHz is covered. The minimum capacitance determines the maximum frequency. The loop is shown in Fig 1.

A low noise amplifier is used to boost signals as most receivers do not dig down to really low level signals at 3.5 MHz. This is because noise is usually a limiting factor on 3.5 MHz and extreme receiver sensitivity is not required. The signals with the loop are lower in level but the noise is also reduced so that a low noise amplifier is desirable. The amplifier and the tuning capacitor were housed in a 15 x 9 x 6 cm plastic box. The battery was made from four AA cells.

The loop was made from aluminium strip in order to achieve a high Q. You could try a scrap of pay TV hardline outer conductor as this would have similar characteristics. Another alternative would be some small diameter copper tube. The high Q results in a narrow bandwidth which is useful in rejecting strong out-of-band signals.

C/o PO Box 2175, Caulfield Junction VIC 3161

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DXpeditions

A Day on an Antarctic Island

*By Ralph Fedor K0IR as told to Stephen Pall VK2PS**

Ralph K0IR

Ralph K0IR is a medical doctor, specialising in diagnostic radiology. He has been involved in many aspects of amateur radio, but has always gravitated back to DXing and contesting, especially on CW. He is a member of several radio clubs and DX Foundations.

Ralph was a member of the 1992 VP8SSI DXpedition team. After the SSI (South Sandwich Island) DXpedition he was asked to organise and lead the DXpedition to Peter I Island. That expedition was widely celebrated as one of the most successful of all time. He was the prime organiser of the 1995 activity attempt on Heard Island and remains involved in guiding the 1997 expedition. Not so long ago, Ralph was kind enough to forward me some notes dealing with an expected typical day during a DXpedition on an Antarctic Island. Here is his story.

Ralph's Story

Based on my experiences on South Sandwich, South Georgia, and Peter I, this is how we might expect a day on Heard Island to unfold.

You awaken at daybreak to what sounds like machine gun fire. It is the fabric of the shelter being whipped by the wind. You begin the transition from the warmth of your sleeping bag to the frigid world outside. You pull cold jeans over your long underwear, put a fleece over your chamois shirt, and cover your jeans with Gortex storm pants. Your boots are stiff and icy cold as you lace them with stiff, cold fingers. You stand, pull on your Gortex parka and stocking hat, and ease your way between your sleeping comrades, being careful not to awaken them.

You move toward the shelter door, always a little off balance as you thread your way between clothing hanging from the shelter's support rods. You take care not to slip on the mini snow bank that has drifted through the zippered shelter door. A blast of cold air rushes into the shelter as you open the door. You try to exit as quickly as possible, but the groans of your team mates lets you know they felt the cold wind enter the shelter as you left.

Leaning against the wind and taking care not to slip in the mixture of snow, mud, and guano, you make your way to the cook tent. Entering, you find it empty and cold. You light the propane stove and place a two quart coffee pot full of water on the burner. While waiting for the water to become hot, you pour yourself a half glass of cold water (remember to conserve) and step outside the shelter to brush your teeth. When you return, you run a little cold water over your hands and into the five gallon bucket on the floor. You lather with soap, rinse with a little water, and dry your hands on the towel hanging from the shelter wall.

Local sunrise brings the 160 metre operator out of his operating shelter. The two of you feast on cereal with hot chocolate, coffee, or tea with a biscuit and jam and one or more bowls of canned fruit. You are beginning to feel warm as you wash your dishes, dry them, and place them in the rack for the next person to use. The breakfast stimulated your gastro-colic reflex; a bowel movement is imminent.

A tarp has been wrapped around four posts driven into the ground to fashion an outhouse. Frost is visibly present on the toilet seat. You lower your storm pants, jeans, and long underwear and plant your rear end on the icy cold toilet seat. "Eeeeee!" you say as frost and flesh meet. Some things can't be hurried, but you try to finish the task before frostbite claims your exposed flesh. Dealing with the toilet paper is a challenge; the wind whips it away from you as you attempt to form it into an acceptable bunch. You eye the ice crystals on it, grit your teeth, and try to keep your long parka from participating

3YOPI – Peter I Island. Ralph K0IR at the operating position in the CW shelter.

The 3Y0PI team (l to r), K0IR, W6MKB, N4GCK, Martin Tosseyn, KK6EK, HB9AHL, XE1L, WA4JQS, ON6TT.

in the wiping process. You emerge from the outhouse wondering if there is anything in the rations that will promote constipation. You wash your hands, again conserving water.

The day is getting brighter now. You survey the camp and see that the night's winds have taken an A3's elements out of a single horizontal plane. The director is nearly vertical and will have to be straightened. Guys on one of the verticals have become dangerously slack and must be tightened. Jerry cans (tied to a post) are empty and need filling. A box of supplies needs to be moved but has frozen down during the night. A seal has made love to a leg on one of the tripods during the night and it is badly bent. The 15 metre beam tie down came loose during the night and the antenna is swinging freely from southwest to east.

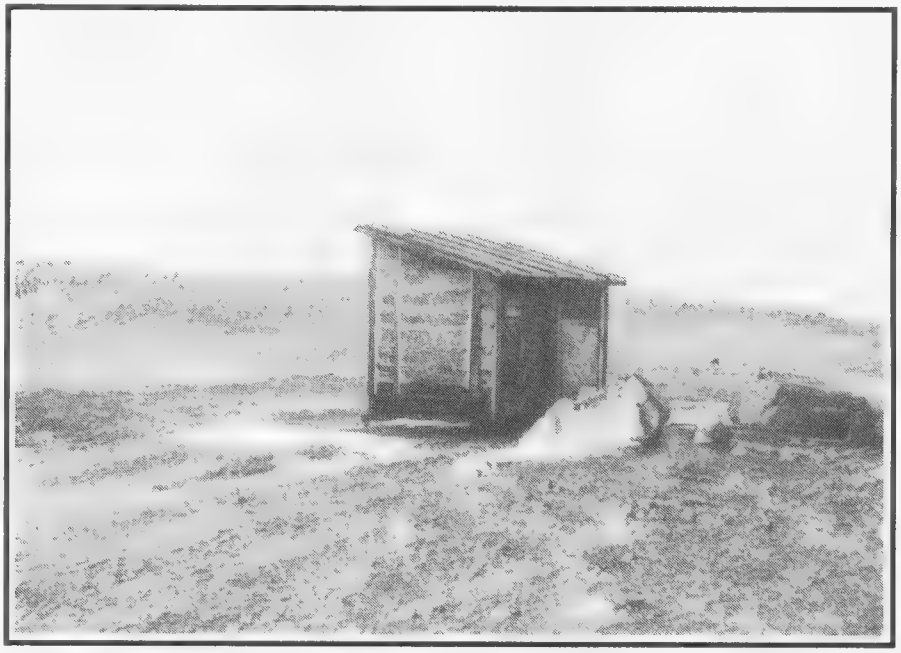
Screams come from one of the station tents. The door's zipper has iced up during the night and the 80 metre operator cannot get out. A yellowish stream has been flowing through the camp, a mixture of water from the melting glacier and penguin urine. It froze during the night and in crossing it you slip, landing on your rear end. Others have since emerged from their sleeping quarters and laugh at your plight.

For the next several hours you and your companions chip ice, straighten antennas, secure guy lines, refuel generators, pump fuel from 50 gallon drums to jerry cans, carry supplies from a cache at the beach to the camp, change oil in one of the generators, try to divert a stream that wants to flood the sleeping shelter, carry human waste from the outhouse to the storage area, and enjoy a chocolate bar.

The schedule calls for you to be on 20 SSB in 30 minutes so you drink a cup of hot coffee and scoop a plate full of baked beans from the pot on the stove. You enter the phone tent, emerge four hours later and find that mother nature has undone most of your previous repair work. While you were operating, your team mates were in the repair mode but couldn't keep up with damages brought by a 70 mph (110 km/hr) gale. One of the verticals came down and, using duct tape, a tent stake, U-bolts, and hose clamps, several of you stabilise it mechanically and hope the wind will subside enough for you to raise it before sunset.

Rain comes with the setting sun. The generators begin to sputter. Four of you try to fashion tarp covers to keep the rain from shorting out the generators.

The team leaders declare there was enough rain water caught and heated for two men to bathe that night. You're one of the lucky ones. Inside the warehouse you stand stark naked in an 18 inch square plastic dishpan with a gallon and a half of warm water in it. You wet down, lather up, rinse, and repeat the



VP8SSI. After the wind destroyed the operating tents, the team moved into this abandoned rescue hut.

process. You have been told that shivering conserves heat, and you are really conserving! You finish drying off and check that nothing has turned blue or, worse yet, black. Clean shorts and a clean tee shirt go under the long underwear you previously had on. You put on your outer gear. Wolf whistles greet you as you enter the cook tent for dinner,

Tonight's menu includes spaghetti, biscuits, canned fruit, sardines, and marshmallows. Of course there is hot coffee, tea, or chocolate. You are scheduled for 2 hours on 40. Someone else does the dishes.

You emerge from the operating tent to a world of blowing sleet and sand and are summoned to the cook tent to help change a propane bottle and solder PL-259s on a coax jumper.

Bedtime. Inside the sleeping shelter there is unhappiness. Someone's sleeping bag slid off a cot and onto the floor. It is soaked. Arrangements are made with a friend to borrow the bag of an operator who will be up all night. Your bag is icy cold as you slide into it but you know it will eventually warm from your body heat. A team member has gone to sleep before you and snores at least 150 dB above the noise level.

What seems like only moments later, someone is shaking you. "You're scheduled to be on 80 in 20 minutes." You walk carefully past three sleeping fur seals (they bite) on your way to the operating tent. The paradox plays in your mind, "Never in my life have I had such a wonderful time being miserable."

1997 Heard Island DXpedition

The Australian team member of the 1997 Heard Island DXpedition is David Muller VK2TQM who is Operations and Quality Assurance Manager for GEC Electronics in Sydney.

David's vast experience as a former Army reservist and SES member specialising in all aspects of electronic communications, will be very useful on Heard Island. The Heard Island DXpedition is founded by the participants, who have individually contributed $US10,000 each, and is also founded by donations and by corporate sponsorship. The total budget of the expedition is around $US300,000. There is still great need for funds and support. I am sure that many of the readers of these columns who need Heard Island as a new country will be willing to make a donation. Please contact David on phone (02) 9898-7426 or by e-mail on *davidm@gec.com.au, or* send your donation direct to Cordell Expeditions, 4295 Walnut Blvd, Walnut Creek, CA 94596 USA.

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Prevent pirates – make sure you sell your transmitter to a licensed amateur

Invitation to Quote for Publishing *Amateur Radio* Magazine

Publishers of limited circulation magazines and other competent interested parties are requested to submit quotations to:-

1. Prepare galley proofs from raw copy (including sub-editing to WIA policy standards and drafting of technical drawings) and deliver to the Editor;
2. Lay out corrected galleys to final page proofing stage;
3. After Editorial approval, print the magazine following the present standard and format; and
4. Deliver the magazine to subscribers following the distribution list supplied by the WIA Federal Secretariat.

The following broad guidelines are to be used as the basis for the quotation:

* Raw copy (in a mix of typewritten and handwritten hard copy and digital copy) and general instructions on layout of each issue are to be provided by the Editor in sufficient time to allow printing and delivery to readers in the first week of each month;
* The tenderer will supply the name of a Production Manager to the Editor, as the point of contact;
* The tenderer will furnish details of arrangements to ensure continuity of service;
* For production purposes, the Editor, WIA, is to be the link person between the publisher and the Institute;
* The quotation is to be submitted on a cost per copy basis;
* Quotations should reach the Secretary by Friday, 27 September 1996;
* All respondents will be advised of the outcome of their submission by 31 October 1996. The successful tenderer will be required to produce and deliver the first issue for January 1997. Any transition arrangements will be negotiated. Copies of the magazine are available for reference from the address below;
* All queries should be addressed to:

The Secretary, WIA,
PO Box 2175
Caulfield Junction, VIC 3161.

Note: WIA divisions may see fit to quote, on the basis of sub-letting all or part of the process to a publishing house.

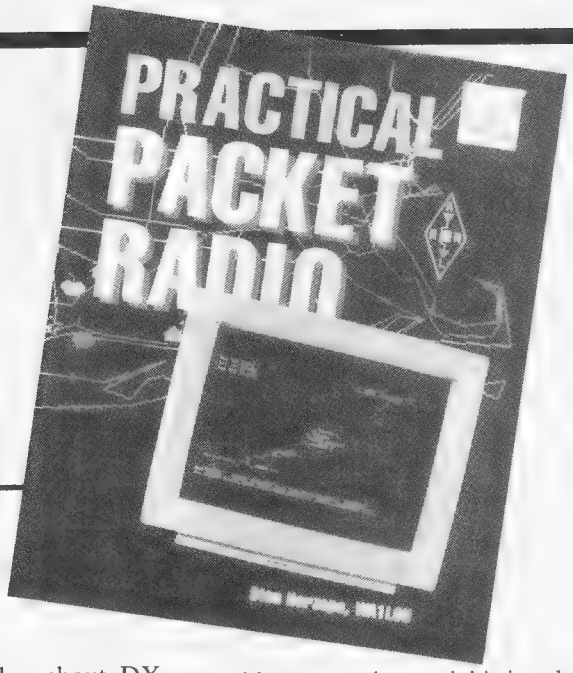
■ Book Review

Practical Packet Radio

Author: Stan Horzepa WA1LOU

Published by: ARRL

Reviewed by: Gil Sones VK3AUI



Packet radio has come a long way from the early 1980s but, even with the latest computer, software and terminal node controller (TNC), it can still be somewhat of a black art. This book goes a long way to providing the answers to your questions and is a useful item to have beside you as you experiment with packet.

It provides essential information in an easy-to-read format. It also provides plenty of reference material to answer your questions.

Amongst other things, there is information about the operation of Bulletin Boards and also about DX Packet Clusters. The DX Packet Cluster is becoming a very popular tool of DX operators in many parts of the world. They are not as prevalent here in VK as yet, but they are growing.

TCP/IP is mentioned and some information is provided. However, if you are trying to get going with TCP/IP you will probably want a specialised textbook. This book does, however, provide an overview and this is valuable for the average packet user.

The book gives much good information and is a worthwhile acquisition for anyone looking at packet. It provides a lot of reference material which is easy to read and find.

Practical Packet Radio is available from Daycom Communications Pty Ltd who provided the review copy. The price is $34. **ar**

■ History

Mission Accomplished

Wilbur Wright, Secretary, Sigs 2 Div Assocn.*

A prime aim of Australia Remembers 1945-95 was to encourage all Australians to remember and thank all veterans of World War II.

One war veteran who influenced our living standards was soldier, manufacturer, public servant, publisher and humanitarian, Oswald Mingay MBE. *(For several reasons we were unable to publish before now this tribute to a great man, but "better late than never". Ed)*

Os, born at Lithgow in 1895, joined the local post office as a messenger, then transferred to Sydney to be a technician. His departure to World War I was delayed through diphtheria.

At the Western Front, to withstand heavy bombardment, elaborate telephone communication systems were set up. CO Signals Second Division later remarked Os could not be spared as an officer as he was too valuable as a technician.

Os was mentioned in despatches for supervising restoration of the Charleroi telephone exchange system. After the war, he remained in London for further technical training.

Post WWI

Back in Australia he was a member of the Wireless Institute of Australia and set up an amateur radio station. By 1922 the radio industry was growing rapidly and he joined Bulgin Electric Co Ltd. He pioneered commercial radio by transmitting on 250 metres despite a warning it broke patent rights. Listeners said the music was very clear and voice items were blurred.

In 1925 he decided to be a manufacturer. His top-of-the-line product was the Super Power Eight

Receiver. Os announced that radio sets now worked off the mains and did not require batteries.

As secretary of the WIA, Os realised it was concerned with amateur activities and there was now a need for a professional engineers' association. Business-wise, Os conducted a radio column in the *Telegraph* and founded the Australian Radio College to train technicians. In 1930 he set up Mingay Publishing Company. 35 years later, he handed over to George McBride, Thomson Publications. In the meantime, he played a key role in the formation of the Institution of Radio and Electronics Engineers, Australia.

With Os as secretary and Sir Ernest Fisk as president, IREE proceedings publications earned world recognition for radio technology advancement. By instituting an award for the best annual paper, he helped stimulate the radio industry and was known as the "father" of the IREE.

In 1938 he was involved in organising the first World Radio Convention Sydney, to which Guglielmo Marconi was invited.

In World War II, Os organised the Army Signals Comfort Fund and served in the Ministry of Munitions with Colonel Sam Jones. Together they went on a mission to the USA concerning communication supplies. Sam said it was the first time Os was subdued when he was confined to bed with a cold. At one stage it is believed that it was requested some noughts be crossed off the Australian requisition! This mission was very important to our war effort.

Post WWII

After the war Os was involved in many community activities, including the RSL, Legacy, and Rotary, and established the Australia-wide industry fellowship BREIF club. With wife Theo they were known for their warm hospitality. He was a keen bowler.

When he announced his retirement in 1965, some extraordinary farewells were organised. In Melbourne, Sir Arthur Warner (Electronic Industries) said, "you can argue with Os and still keep smiling". When Chairman, Sir Lionel Hooke (AWA) presented Os with a Sydney Harbour painting, he said he

Sir Ernest Fisk presenting a Life Membership Badge to Oswald Mingay at a BRIEF luncheon held at the Sydney Trocadero on 6 December 1962.

VK QSL BUREAUX

The official list of VK QSL Bureaux. All are Inwards and Outwards unless otherwise stated.

VK1		GPO Box 600 CANBERRA ACT 2601
VK2		PO Box 73 TERALBA NSW 2284
VK3	Inwards	Box 757G, GPO MELBOURNE VIC 3001
	Outwards	40G Victory Blvd ASHBURTON VIC 3147
VK4		GPO Box 638 BRISBANE QLD 4001
VK5		PO Box 10092 Gouger St ADELAIDE SA 5001
VK6		GPO Box F319 PERTH WA 6001
VK7		GPO Box 371D HOBART TAS 7001
VK8		C/o H G Andersson VK8HA
		Box 619 HUMPTY DOO NT 0836
VK9/VK0		C/o Neil Penfold VK6NE
		2 Moss Court KINGSLEY WA 6026

expected Os to reply with a few shots including some back-slaps and smacked bottoms!

Os Mingay's old unit, Sigs 2 Div, now 8 Signal Regiment, is in its 80th year of continuous service and his contribution to his old unit cannot be adequately measured. As president, he organised get-togethers and continuously looked after the welfare of his mates for the best part of 60 years.

His initiative and active support in the commissioning of paintings commemorating the service of signalmen in two world wars ensured completion of the project. His hope that the "Bully" be continued has been fulfilled. His publishing interests are a living memorial.

At his farewell he used an old army phrase. He said his "mission was accomplished" and he was happy to hand over to the next generation. He believed those who followed electronics had a wonderful opportunity because of the big developments coming.

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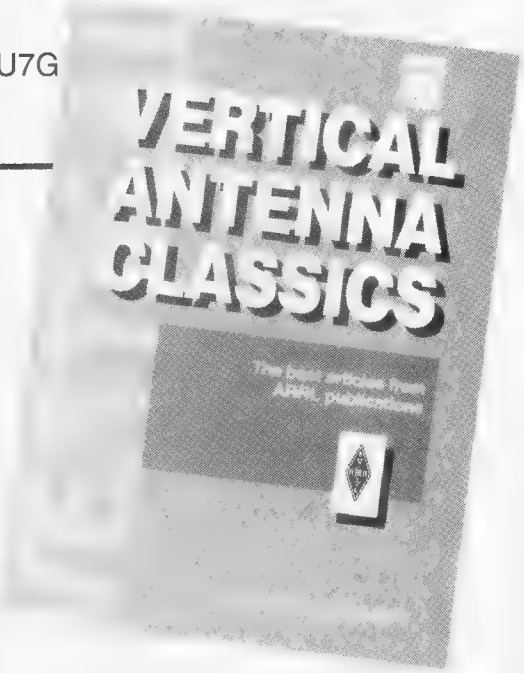
See Review in July '93 Amateur Radio

■ Book Review

Vertical Antenna Classics

Edited by: Robert Schetgen KU7G
Published by: ARRL
Reviewed by: Bob Tait VK3UI



This new release contains 121 pages, divided into six chapters, and covers all the essentials of vertical antennas, such as radials, ground systems, mobile, directional arrays, plus a section on computer modelling and MININEC.

The section on modelling is very detailed and contains all the necessary data to allow you to roll your own vertical. This section is backed up by the next chapter on using MININEC which will compute all those complex impedances for your own designs. A plotting program will give you an on-screen radiation pattern for your favourite antenna; input a new frequency and observe the changes before you actually build the antenna.

If all this seems a bit much, then there are some simple nomograms to allow you to calculate how long to make the radiator, and what size capacity hat you need if you wish to go for a short vertical. There are also details on matching, feedlines, tuners and lots more.

There are Discones, J poles, verticals with gain, phased arrays, directional arrays, and even verticals you can make to improve the operation of your handheld.

This publication is well presented, formatted in the familiar ARRL style, and would be a worthwhile addition to any radio amateur's library.

The review copy was supplied by Daycom Communications Pty Ltd and the cover price is $26.00.

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QSP News

Regulations Examinations

The WIA Federal Examination Committee is at present working on bringing the Regulations examinations up to date. No changes have been made so far, as we have been waiting for the release of the revised RIB 71 and the approval of the draft Regulations Question Bank. However, as it seems that these are still some time off, the existing Bank is being reviewed and modified to incorporate the contents of the Technical Licence Specifications (TLSs) which have been released.

We have been assured by the SMA that these publications and the other RIBs are being reprinted and made available.

It will take a few weeks for all changes to be approved by the SMA. Examiners and candidates will be notified when the changes are expected to reach the examination papers being sent out by the WIA Exam Service.

ALARA

Sally Grattidge VK4SHE, ALARA Publicity Officer*

The Second Mrs Mac

(From QNEWS, 23 June)

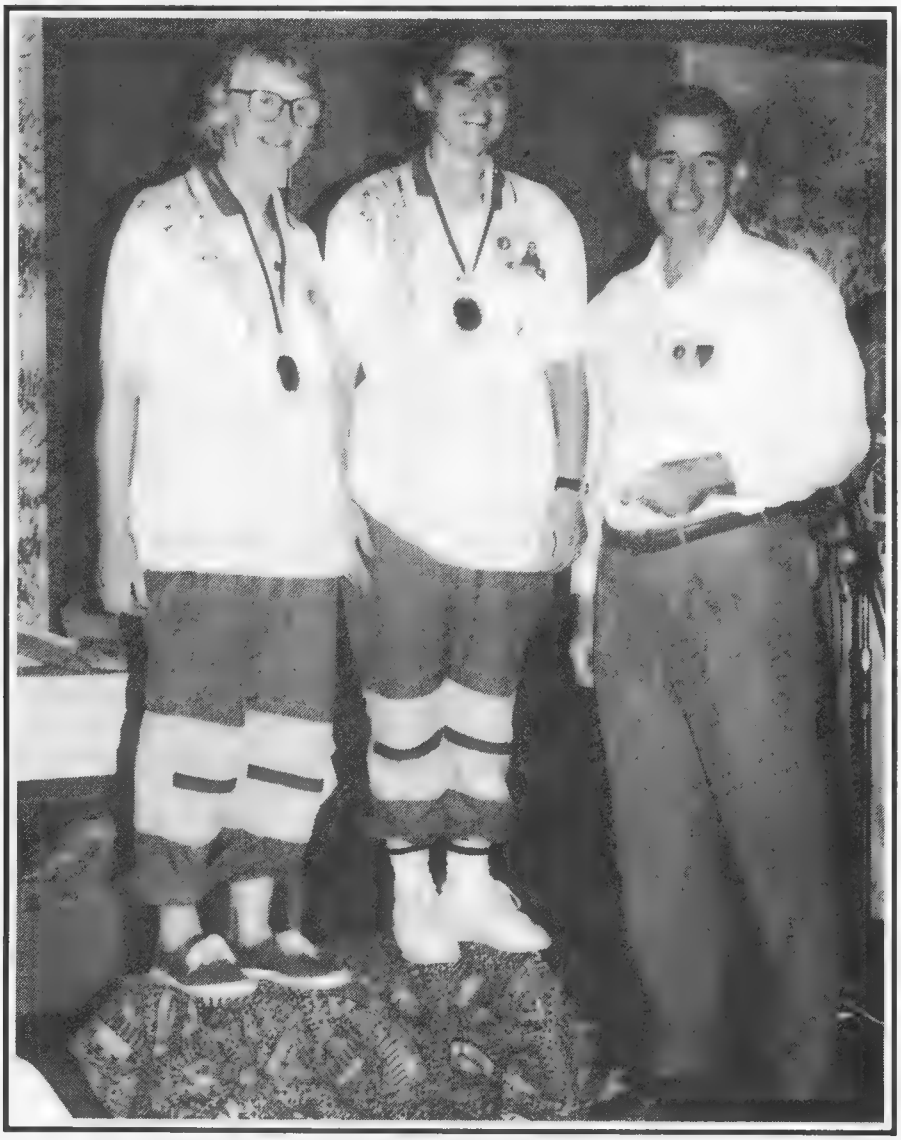
Amateurs in Brisbane were surprised to hear of the 100th birthday of Mrs Florence V Mackenzie on 20 June this year. The Florence V Mackenzie we all know so well, famous for teaching Morse Code during World War II, among many other achievements, is no longer with us. But Graham VK4BB could not resist meeting her namesake in a Brisbane nursing home and discovered an interesting connection with amateur radio.

Florence herself was never licensed, but her husband Matt VK4GK was a very active amateur, and her daughter Madeleine (Pugh) was the youngest licensed amateur in the British Empire after passing all her examinations at the age of twelve.

Florence learned to send Morse code so that her husband could practise receiving, although she claims she was never good at reading it. She also checked Matt and Madeleine's sending when they practised using a key which activated a light for each dot or dash. Florence watched for the light to see they were doing it correctly.

Father and daughter worked all available DX countries with "low wave". Being so young, Madeleine had to have a senior person with her for safety reasons when she operated, and Florence often took this role. Only once did she have to rescue her daughter and this was when Madeleine fell asleep on a Monday morning after a weekend BERU contest. Her hand touched the terminals of the key giving her a small shock and sending the key flying across the room. Florence switched off the rig (and probably sent her to bed).

Madeleine's father was Australian Secretary of the Radio Society of Great Britain and regular meetings were held in their house and those of other members, including "the U boys", VK4UU, VK4US, VK4UL and VK4AP, as well as VK4RY and VK4AW. He also started a Sunday morning commercial station, and experimented with 2 m and 5 m in the car. Florence monitored his signals while he drove around. For such devotion to duty this remarkable lady definitely deserves a mention in *Amateur Radio!*



The WIA Women's team, Sally VK4SHE and Sue VK3LSL, being presented with bronze medals by the WIA Federal President Neil Penfold VK6NE.

(Photograph by Iain VK4IGM)

A Good Scout

(from Christine Taylor VK5CTY)

Jenny Housden was one of the operators of the very successful club station VK5GGA in the ALARA Contest. The certificate has pride of place on the wall of the radio shack at Douglas Scrub near McLaren Vale. Jenny has been such an energetic and resourceful leader of Guide radio activities during her five years that she has been re-elected for another two years – something almost unheard of!

She has run, and continues to run, a series of very successful radio events with different Guide groups from time to time with the able assistance of local amateurs. Mostly the stations operate on two metres but, when possible, HF contacts are sought. An international camp is taking place at Douglas Scrub at the end of the year and there is sure to be a radio station. Dates, etc will be publicised when available so that you can listen for them.

ARDFing – A YL's Point of View

(Sally VK4SHE)

In July, Townsville Amateur Radio Club hosted the 2nd Region 3 ARDF championships (details and results elsewhere in this issue of *Amateur Radio*) with Sue VK3LSL and Sally VK4SHE competing in the Women's section for the WIA team.

You may think I am just a teensy bit crazy to try out a new sport by representing my country at an international event. It is not the kind of thing I would normally do, not being

DICK SMITH
ELECTRONICS

2m MIL-SPEC Tough Mobile Transceivers

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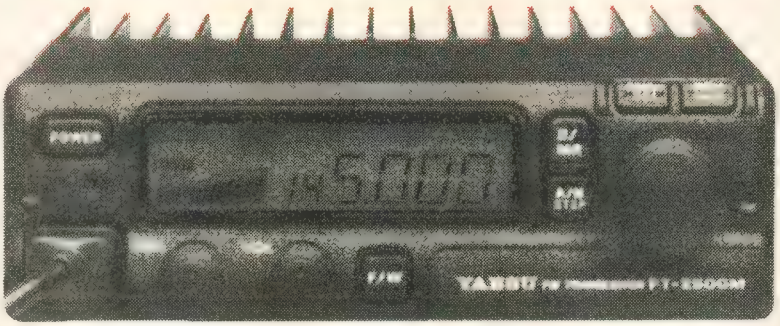
FT-2500M 2m Heavy-Duty Transceiver

Built tough to take the rough stuff. The FT-2500M meets US MIL-SPEC 810c for shock and vibration so it'll provide years of reliable mobile operation. It sports a new easy-to-operate front panel design that has rubber coated knobs to keep the dust out. There is also a huge 'Omni-Glow' LCD screen that is teamed up with a one-piece diecast chassis to set the FT-2500M apart from all other 2m mobiles.
For improved front-end performance, Yaesu's exclusive 3-stage Advanced Track Tuning feature and dual-FET mixer reduce overloads from strong signals while providing excellent sensitivity and wide-band receive operation.



Also includes:
- 31 tuneable memories
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Specifications:
Frequency range: Tx 144-148MHz
Rx 140-174MHz
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Dimensions: 160 x 50 x 180mm (WHD)
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YAESU

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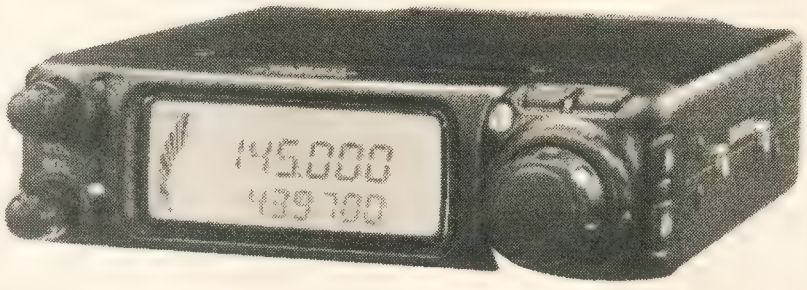

Specifications:
Frequency range: Tx 144-148MHz,
Rx 110-180, 300-520, 800-824, 849-869, 894-999MHz
RF Output: 70, 50, 25, 10W
Sensitivity: 0.2uV (main Rx), 0.25uV (sub Rx)
Dimensions: 140 x 40 x 180mm (WHD)
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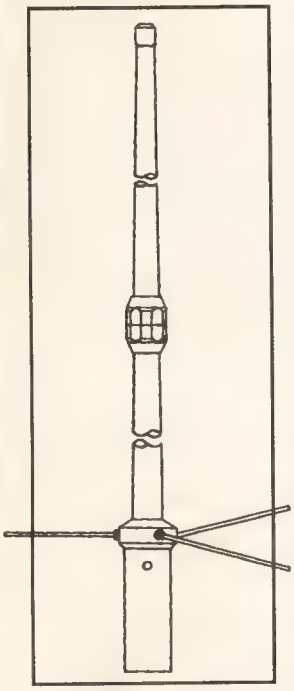

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2m/70cm GST-1

Frequency:	144-148MHz, 430-450MHz
Gain:	6dB on 2m, 8dB on 70cm
Max. Power:	200W
Length:	2.5m
Type:	2 x 5/8 wave (2m) 4 x 5/8 wave (70cm)
Connector:	SO-239 socket

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Cat. D-4830

2m/70cm GST-3

Frequency:	144-148MHz, 430-440MHz
Gain:	7.9dB on 2m, 11.7dB on 70cm
Max. Power:	200W
Length:	4.4m
Type:	3 x 5/8 wave (2m) 7 x 5/8 wave (70cm)
Connector:	SO-239 socket

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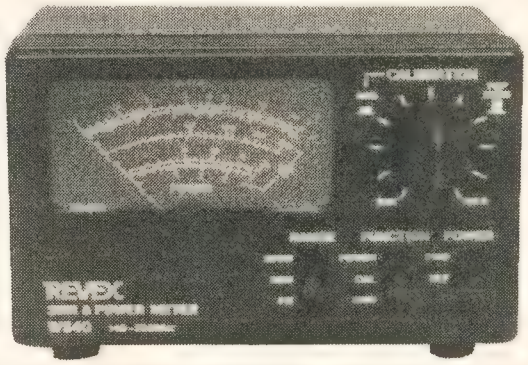

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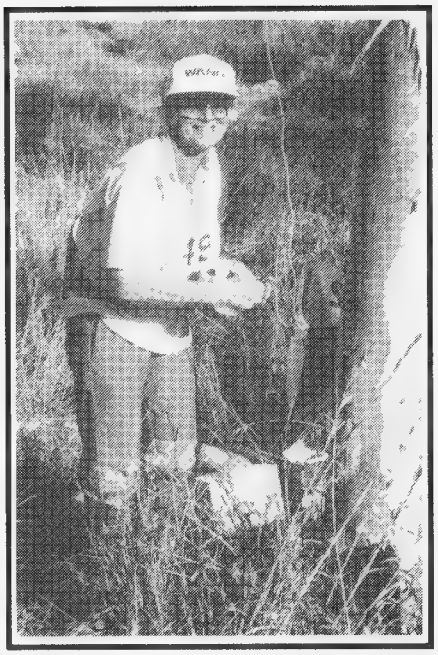

Sally VK4SHE finding the fox.
(Photograph by Iain VK4IGM)

of a competitive nature (in other words, I hate losing), but the persuasive powers of Wally VK4DO (organiser of the event) were hard to resist, and YLs willing to make public idiots of themselves were thin on the ground.

So there I was, resplendent in green and gold, poised at the start, accompanied by two Oriental gentlemen who looked like they knew what they were doing, and who disappeared into the scrub before I had the headphones on.

I had suspected that a couple of turns round one of Townsville's parks (green, shady and FLAT) would be poor preparation for going bush and I was right. After more than half the time allowed had passed with no fox found, and scrambling up a rocky near vertical incline, I decided this was a stupid sport and I would never do it again. "Did you use the track?" someone asked later. "Only wimps use tracks" I replied. I wonder where it was?

Things started to improve from that moment. One fox was found, and the hard slog uphill became a slide and stumble down. When you finish, however unsuccessful, everyone claps, there is hot tea and sandwiches, friendship, lively discussion and a great sense of achievement.

The whole week was an eye-opener to those of us who had only heard about serious **Radio Sport**. The Opening Ceremony, with teams in colour co-ordinated track suits and endless photographs, set the mood. Townsville turned on perfect weather and, in spite of the heat, which those from colder climes remarked on, some impressive times were recorded (I estimated I would need about a week to find all the foxes). There was a wonderful atmosphere of friendship, much chatter in many languages and many smiles between those who had no common language. The Closing Ceremony was a feast of gift-giving and congratulations.

Radio Sport has great potential for involving families and young people in amateur radio. This event was serious stuff but, like many sports, it can be played at various levels and enjoyed by all ages and states of physical fitness. Making the "sniffers" would be an interesting project for beginners in electronics and, for the more skilled, there seems to be no limit on creativity when chasing the ultimate design. The hunt is fun and challenging and could be just the shot in the arm our aging amateur population needs.

The YL competitors were Luo Chunyan and Yang Chunxiang from China; Cheryl Wheatley ZL2VCC, Denise Hider ZL3TDW, Anne McMaster ZL3VR and Margaret McConnachie ZL3UD from New Zealand; Okada Miwa JF0REU, Akutsu Kumiko JL1KEA, Imamura Hideko JG6EKO, Watanabe Nobue JK1AXK, Yamagami Yoshiko JQ1LCW and Takahashi Mitsue JL1HAC from Japan; and Sue Diggins VK3LSL and Sally Grattidge VK4SHE (the locals).

The list would be incomplete without Thida Denpruektham HS1ASC from Thailand, officially an Observer, although she appeared busy every time I saw her. Thida is one of those rare people who make everyone they meet feel like a special friend.

ALARAmeet Extra

Please note the ALARAmeet Special Effort will be run the same as in the past. Those not attending, or any who need more information, please contact a committee member. Apologies for putting this in an earlier issue as the Special Event (blame the static on 80 m).

Birthday Net

The ALARA Birthday net was held on Saturday, 27 July on 3.588 MHz with fair conditions, but a smaller net than last year. Heard on the net were Christine VK5CTY, Bron VK3DYF, Pat VK4PT, Meg VK5AOV, Maria VK5BMT (portable somewhere near Darwin), Debbie VK5DEB, Sally VK4SHE, Marilyn VK3DMS and Jenny VK3MDR. If you were there and not mentioned, let me know. Thanks to Christine for staying the distance and keeping everybody together. Happy 21st to ALARA.

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The Path to Valhalla

The antarctic winter is in full fury but the tiny OSCAR satellite orbiting at 800 km is oblivious to the icy winds and perpetual darkness below. It is about to come out of eclipse and into the sunlight once more. It encounters 14 such sunrises each day. From a vantage point on the satellite one could see the coastlines of Australia and New Zealand come into view over the edge of the earth.

Simultaneously, in amateur radio shacks in Hobart and Dunedin, two computers take control of the stations. The receivers and transmitters switch automatically to Doppler corrected frequencies and the antenna rotators swing long crossed Yagi beams to intercept the faint signals now just audible from UoSAT-OSCAR-22.

In a moment or two, signal strength meters begin to climb, lights dance on terminal node controllers and 9600 baud data streams up the computer screens. The game is afoot!

This is the magical world of the digital amateur radio satellites. There is pure poetry here for the initiated but be warned ... the path to Valhalla can be stormy!

The above scenario makes the rather naive assumption that everything works according to plan. Indeed, once it is all set up and working, the entire system is virtually bullet proof and many such stations operate continuously unattended. Much of the packet radio BBS mail is carried through a world wide network of automated amateur radio digital satellite stations. However, just in case you think it all looks too easy, I would urge you to consider the words of Dr Earl Hackett in one of his "body programs" on our ABC radio some years ago. *"The three main branches of science are easy to distinguish, if it smells bad...that's chemistry, if it's green or it wriggles...that's biology and if it doesn't work...THAT'S PHYSICS!"*

Fortunately, in this world of frightening complexity, of innumerable and seemingly insuperable variables, heroes of Wagnerian proportions are at work. At Surrey University, and the various AMSAT group headquarters, these heroes have placed in our hands a number of amateur radio satellites that are very reliable in operation. I chose the word "heroes" carefully. Their efforts are indeed heroic.

The phase 1, 2 and 3 satellites and, more recently, the three main digital birds UO-22, KO-23 and KO-25, have provided us with stable operating platforms with which to experiment. We, the users, need to have only modest equipment and reasonable technical knowledge to enjoy the fruits of their labours and extend our amateur radio activities into the space age.

But, the path to Valhalla lies strewn with the wreckage of many failed attempts. The designers and builders of our amateur radio satellites have "given it their best shot". Their score is on the board. Anything short of this on the user's part is bound to produce less than satisfactory results. Nowhere is this more true than in the case of the digital satellites.

System Requirements

Location

You should think carefully about this before getting all excited about satellite work. You need to be able to see the sky. The more sky you can see the better. THE SATELLITES ARE UP IN THE SKY! If you can't see the sky, forget about working the satellites. Pardon me for labouring this point but I hope you can see the importance of it. One can work DX from the bottom of a valley on 20 and 40 metres. It's not so easy with satellites. The electrical noise environment should also be considered. Satellite signals are weak. It's not like working in "kilowatt alley".

Antennas

Unless you live in a remote noise free area and you are skilled in making all-sky, omni-directional antennas and high gain, extra low noise state of the art preamplifiers, you will need to have a steerable az/el system. This usually means an az/el rotator, insulated cross boom and high gain switchable circular polarised Yagis for 145 MHz and 435 MHz. You will still need the low noise preamplifiers mounted up the mast as close as possible to the antenna feed points. Since the current digital birds use mode J you will be transmitting on 145 MHz and receiving on 435 MHz full duplex, ie simultaneously.

Therefore, you will need some form of filter in the receive line, preferably at the antenna terminals, certainly before the pre-amp. In my case I made a cavity resonator from copper tubing. Without this you will lose all the benefits of full duplex operation; when you transmit, your receiver will be hopelessly desensitised. No satellite antenna system would be complete without the best feedline you can afford. An affordable minimum would be 9913 for the main down leads and good quality, BRAND NEW 213 for the flexible bits around the rotators. Fit BRAND NEW connectors to all feedlines.

Automatic Antenna Tracking

Unless you have four arms, or a pet octopus, you will need to use some form of auto-track system. They fall into two main types. There are free standing "track-box" devices and they work well. I have one for my 2.4 GHz dish. The other most common type is the Kansas City Tracker. This is a computer card that you put inside your computer. It has an option to automatically tune your uplink and downlink frequencies to compensate for Doppler shift variations. The track-boxes also have this option. Again, the result is one less octopus in the radio shack. What's that you say? "I haven't got a computer". Get one or forget about the satellites. You can only sponge on your friends for so long.

Radios

The choice here is yours and the sky's the limit. I use a pair of older Icom rigs, the IC-271/471 combination. Pardon me for shouting but NO MATTER WHICH RIG YOU USE IT WILL NEED MODIFICATION BEFORE IT WILL WORK WITH THE 9600 BAUD SATELLITES. Many newer rigs claim to be 9600 baud capable, and a few of them will cope quite well with data from the local

packet network, but at the time of writing I do not know of any rig which will work the digital satellites "out of the box". Even the bright, shiny ones that claim to be "satellite ready".

The mods are slight and can be done with confidence. They are well documented. It's nice if your radios will switch 12 volts up the co-ax for the pre-amps (be careful where you put your cavity filter!).

Modem

You have some choice here. You can build from a kit or buy ready-made from a number of sources. The most popular choice seems to be a TNC-2 type terminal node controller with an attached G3RUH 9600 baud modem card. The three main digital birds UO-22, KO-23 and KO-25 will respond to this system. Other satellites, like Fuji, use PSK modulation and need a modem which will cope with PSK. The adjustment of the modem may require some test gear to get the transmitter deviation to be exactly +/-3 kHz. The modem talks to the computer through its serial port and to the radios via the mods referred to earlier.

Computer

This is determined somewhat by the software you intend using, but let's assume you are going to give it your best shot and run something more than the most basic DOS software. Whilst programs like PB/PG are still in use, the digital birds are so capable that, to do them justice, one should be using one of the fancier Windows-based programs available these days. Your computer should be capable of running Windows without restriction. It should have a large hard disk, 200 Megabytes or more, plenty of RAM and a good VGA monitor. I use Windows 3.11 but, looking to the future, it will soon become necessary to convert to Windows 95/96 etc in order to keep up with the inevitable software upgrades. The computer must have a serial port capable of supporting at least 19200 baud operation.

Software

Here's where we lean heavily on the heroes again. Last year the satellite community was alive with talk of a new program called WiSP. It was written by Chris Jackson ZL2TPO. Chris now holds the call G7UPN and works at the University of Surrey as UoSAT Command Station Manager. It would not be exaggerating to say that WiSP has revolutionised the digital amateur satellite scene. So much so, I won't bother mentioning any other software.

If you're serious about the digital birds, get into WiSP. It consists of a number of modules which are interactive. The two main modules are GSC, the Ground Station Control and MSPE, the Microsat Protocol Engine. Together they are capable of integrating the station into a fully automatic working unit. Getting it all together. VALHALLA!

I know of stations that are far more comprehensively equipped than the above, but I don't know of any that are successful that do not conform roughly to the above outline. You can add HF. You can add PSK. You can work straight packet, eg MIR. You can tool up for the phase 3 birds like AO-10/13 and P3D. If you want to do well at any of these you need to specialise. I don't know any satellite operator who "works all the OSCARS".

Assembling a station to cope adequately with the digital satellites is a bit daunting when you begin. The setting up of antennas, auto-track, auto-tune, modems, modifying radios, configuring your computer and setting up WiSP will test one's perspicacity to the limit but, when it's all up and running, the results are spectacular and immensely satisfying. Feeling a bit jaded lately? Lost your drive? Don't reach for the Barrocca, try the digital birds.

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WIA News

Ham Radio in the Movies

Amateur radio is coming to a theatre near you. Two recently released American films incorporate amateur radio in their plot lines.

The science fiction thriller, *Independence Day*, revolves around aliens taking over the Earth. Commercial communications links are thrown into disarray, Earth satellites are destroyed or disabled by the aliens and the US Space Command uses amateur radio to send out instructions for retaliation against the invaders. Hams spread the word using Morse code. Look out for the straight keyers. More details can be gleaned from the Internet at *http://www.id4.com/* on the World Wide Web.

In *Phenomenon*, American actor Forest Whittaker plays a radio amateur. He gets to use Morse code, while co-star John Travolta apparently decodes digital-mode signals in his head.

Amateur radio transceiver manufacturers are apparently unconcerned at this new development.

US RF Safety Standards Affect American Amateurs

According to a recent release from the American Radio Relay League (ARRL), the US Federal Communications Commission (FCC) has issued a new RF safety standard which will require US amateurs running more than 50 watts PEP to conduct routine RF radiation evaluations.

To come into force on 1 January 1997, the new standard will require those amateurs using more than 50 W PEP to conduct routine RF radiation evaluations to determine if RF fields are sufficient to cause human exposure to RF radiation levels in excess of those specified. Previously, amateurs in the US had a blanket exemption from this requirement.

The FCC was reported to have said, "Measurements made during a Commission/EPA study of several typical amateur stations in 1990 indicated that there may be some situations where excessive exposures could occur."

Amateurs operating stations running less than the 50 W PEP limit are categorically excluded, according to the ARRL report. However, stations using powers above that level will have to perform routine evaluations to see that their stations comply with the regulations for maximum permissible exposure (MPE). Where station RF radiation could exceed the limits, operators are required to take action to prevent such an occurrence. This could mean relocating the antenna, changing power levels or emission type, or a combination of remedies.

Push-to-talk mobile and portable amateur transceivers will be excluded from routine evaluations. The ARRL has an Internet Web site devoted to the subject, at *http://www.arrl.org/news/rfsafety/* from which more information can be obtained.

The WIA knows of no move to introduce a similar standard in Australia at this stage.

Support the WIA in order to protect amateur radio frequencies

Awards

*John Kelleher VK3DP - Federal Awards Manager**

Congratulations are due to the officials and net controllers of the Down Under County Hunters Net. This group has forged ahead through much difficulty and is, almost daily, supplying a few "rare ones" to those who frequent 14255 kHz. The original plan was to operate over the period of the US weekend, but they have blossomed out to include a daily look at the US counties, and to hasten qualifying for the prestigious USCA Award.

Congratulations are also due to those responsible for the re-activation of the VK1 Award Net. I would like to see more of this type of activity, especially from those organisations who, in the past, ran very successful 80 metre nets.

ZP Awards Program

The Radio Club Paraguayo issues the following awards to any amateur operator, or SWL, for confirmed contacts or reports, according to the rules for each award. A contact with a ZP station is mandatory for any of these awards. Contacts with mobile stations (ZP0) before 1991 will be acceptable.

All Diplomas are issued on a "mixed" basis (no band or mode separation) except for those where all contacts were made on digital modes (RTTY, Packet, Amtor, Pactor, SSTV, or any other computer generated signal), or via satellite. Send certified list (GCR rules) - please NO QSL CARDS - with a fee of $US5.00 or 5 IRCs for each award to: Radio Club Paraguayo, Award Manager, PO Box 512, Asuncion, Paraguay.

All Mediterranean Countries Award (AMCA)

This award is issued for contacts with inland countries, as follows. A2, A5, C31, CP, EK (ex UG6), ER (ex UO5), EU (ex UC2), EX (ex UM8), EY (ex UJ8), EZ (ex UH8), HA, HB, HV, JT, LX, OE, OK, OM, T7, TL, TT, TZ, UJ (ex UI8), UN (ex UL7), XT, XW, YA, Z2, ZP, 3DA0, 4J (ex UD6), 4U1ITU, 5U, 5X, 7P, 7Q, 9J, 9N, 9U, and 9X. Class A = 41 countries; Class B = 30; and Class C = 20.

Tropics of Cancer and Capricorn Award (TCCA)

This award is issued for contacts with countries touched by the Tropics of Cancer (A4, A6, BV, BY, C6, HZ, KH6, SU, S0, S2, TZ, VU, XE, XZ, 5A, 5T, 5U, and 7X) and Capricorn (A2, CE, C9, LU, PY, VK, V5, ZP, ZS, and 5R). Class A = 28 countries; Class B = 20; and Class C = 12 countries.

All Zone 11 Prefixes Award (AZ 11 PX)

Issued for contacts with different prefixes of stations, located in CQ Zone 11, from the following list: ZP0-9, PP0-PP9, PQ0-PQ9, PR0-PR9, PS0-PS9, PT0-PT9, PU0-PU9, PV0-PV9, PW0-PW9, PY0-PY9, ZW0-ZW9, ZV0-ZV9, ZX0-ZX9, ZY0-ZY9, ZZ0-ZZ9 and any special or contest prefixes. Class Gold = 100 prefixes with at least 10 ZP prefixes; Class Silver = 60 prefixes with at least 5 ZP prefixes; Class A = 30 prefixes; Class B = 19 prefixes; and Class C = 12 prefixes.

South America Award (DSA)

Issued for contacts with stations located in ITU Zones 12 (FY, HC, HC8, HK, HK0 (Malpelo), OA, PZ, 8R, YV, and CP1-8-9), 13 (PY6-7-8, PY0, (Fernando de Noronha), and PY0 (St Peter and Paul)), 14 (CE1-2-3-4-5, CE0X, CE0Z, CP2-3-4-5-6-7, ZP, CX, and LU (A-U, Y), 15 (PY1-2-3-4-5-9, and PY0 (Trinidade)), 16 (CE6-7-8, VP8 (Falklands), and LU (V, W, X)), and 73 (KC4USP, LU (Z), CE9 (AA-AM), VP8 (Graham Land), and VP8 (South Georgia, South Orkney, South Sandwich, and Sth Shetland). Class A = 33 countries and 6 Zones; Class B = 25 countries and 6 Zones; and Class C = 18 countries and 5 Zones.

The Diploma Paraguay (DP)

Issued to amateurs living outside Paraguay, for confirmed contacts with five different ZP stations. South American amateurs should contact 15 different ZP stations.

Certificado Radio Club Paraguayo (CRCP)

Issued for confirmed contacts with 15 different ZP stations.

Worked All ZP Award (WAZP)

Issued for confirmed contacts with one station in each of the nine call areas (ZP1 to ZP9). Special or contest prefixes are not valid for this award. Special certificates are issued for ZP100, 150, 200, 250, 300, 350, 400, 450, and ZP500, for claims for that number of stations.

ZP3 Award

Issued for confirmed contacts with stations located in the third call area (ZP3), as follows: ZP, 10 stations; CE, CP, CX, LU, and PY, five stations; and rest of the world, two stations.

Mercosur Prefixes Award (Mercosur - PX)

Issued for confirmed contacts with stations located in the countries which are part of the Mercado Comun del Sur Mercosur Trade Agreement (LU-Argentina, PY-Brazil, ZP-Paraguay, and CX-Uraguay) after 1 January 1995. At least one prefix of each country is required. Special event and contest prefixes are acceptable for this award. Class A = 60 prefixes; Class B = 40; and Class C = 20 prefixes.

Diploma Departamentos del Paraguay (DDP)

Issued for contacts with one fixed or portable station located in the Nation's capital city, and each of the following departments into which Paraguay is divided:

Call	Area	Department Capital	City
ZP1	XVI	Boqueron	Filadelfia
	XVII	Alto Paraguay	Fuerte Olimpo
ZP2	XV	Presidente Hayes	Pozo Colorado
ZP3	I	Concepcion	Concepcion
	XIII	Amambay	Pedro Juan Caballero
ZP4	II	San Pedro	San Pedro del Ycuamandyju
	XIV	Canindeyu	Salto del Guaira
ZP5	Capital City of the	Country	Asuncion
ZP6	III	Cordillera	Caacupe
	IX	Paraguari	Paraguari
	XI	Central	Aregua
ZP7	IV	Guaira	Villarrica
	V	Caaguazu	Coronel Oviedo
	VI	Caazapa	Canzapa
ZP8	VIII	Misiones	San Juan Bautista
	XII	Neembucu	Pilar
ZP9	VII	Itapua	Encarnacion
	X	Alto Parana	Ciudad del Este.

Class A = 18 Departments; Class B = 16; and Class C = 12 Depts.

ZP1 Award

Issued by the Radio Club Filadelfia ZP1FF (RCP's affiliate), for confirmed contacts with different ZP stations located in the first call area (ZP1). A contact with ZP1FF is mandatory. South American stations should contact 30 stations, and the rest of the world 10 stations.

Fortines del Chaco Award

Issued by the Radio Club Filadelfia (RCP's affiliate) for confirmed contacts with stations located in the following Chaco War forts (outposts): Boqueron, Pitiantuta, Toledo, Km 145, Km 160, Km 180, Guachalia, Lagerenza, Campo Via Nanawa, Trebol, Isla Poi, Tte Montania, Camacho (Mcal, Estigarribia), Tte Enciso, Tte Martinez, and Tte Rojas Silva. The contact with Fort Boqueron is mandatory. South American stations should contact eight forts, and the rest of the world four forts.

Contact All Time Zones (CATZ)

The start for valid contacts is 1 July 1996 at 0000z. The world is divided into 24 time zones. Each time zone is 15 degrees wide. For the sake of this award, half-hour zones and out-of-zone artificial time changes will be ignored. This award is based on the true 15 degrees each, world map 24 time zones.

The applying station must have one (two-way) contact on amateur radio allocated frequencies with a station in each of the worlds' 24 time zones. Contacts with one's own nation does not count. The operator applying for the award must have made all 24 contacts from a location within the same country. The award may be endorsed as the applicant wishes in regard to band and/or modes.

An applicant for the award must be in possession of 24 QSL cards, one from each of the time zones. A list should be made showing each contact's call sign, date, band, mode and the time zone starting with the Prime Meridian (0 deg), and moving eastward. There is a fee of $US5.00 to cover the cost and mailing of the 8 x 10 certificate (mailed unfolded).

It is not necessary to mail your QSL cards to World Radio. Send a statement signed by two other licensed radio amateurs (General Class or above) that they have inspected and verified the required QSL cards. The application should be addressed to: CATZ Award, World Radio, 2120 28th Street, Sacramento, CA 95818, USA. Those receiving the CATZ Award will have their name and call sign reported in the World Radio DX column.

**PO Box 2175 Caulfield Junction 3161*

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Club Corner

Seen communicating at the Riverland Radio Club's "Communication 96" were (l to r) Bob Wilkinson, Adrian Reimann VK5AJR and Neil Francis VK5ANF.

Radio Amateurs Old Timers Club (RAOTC)

Would members please note that the usual September luncheon in Melbourne will be held on Tuesday, 17 September at 12.30 for a 1.00 pm start.

The venue will be the Bentleigh Club in Yawla Street, Bentleigh. The cost will be $21.00, plus refreshments if required. There will be a most interesting talk by Trevor Mitchell VK3CUP who held a very responsible position at the Woomera Rocket Range at its busy time.

It is important that firm bookings be in the hands of the Club Secretary, Arthur Evans VK3VQ, not later than Thursday, 12 September. It is gratifying that our membership is slowly but steadily increasing. This encourages the Committee to believe that they must be doing something right!

Allan Doble VK3AMD

Radio Amateurs Old Timers Club of South Australia

The annual luncheon will be held on Thursday, 24 October at 12 noon at the Aviation Institute Club at the Adelaide Airport.

As usual, we invite amateurs 60 years and over who have held, or are eligible to hold, an amateur radio licence for 10 years and over (ladies are welcome), to join us.

Please RSVP by 17 October to either the President, Jack Townsend VK5HT on 295 2209; the Secretary, Ray Deane VK5RK on 271 5401; or the Assistant Secretary, Lew Schaumloffel VK5AKQ on 263 0882.

For those using public transport, take TA Bus 278 (Currie Street) to Stop 9.

Ray Deane VK5RK

Kempsey and District Amateur Radio Club Inc

KADARC Inc will be holding its second field day on Sunday, 6 October commencing at 9.00 am.

The program for the day will include trade displays, flea market, mobile and talk-in foxhunts, demonstrations, refreshments and food. A full program with all details will be published as the event draws near.

KADARC Inc meets on the third Tuesday of each month at 7.00 pm in the Guides Hall, Verge Street, Kempsey and visitors are always welcome.

For information, contact the President, Ray Wells VK2TV on 065 628 549; or the Secretary, Ted Bastow VK2WL on 065 617 218. Alternatively, packet messages may be addressed to VK2TV@VK2TV.

Ray Wells VK2TV
President

Moorabbin & District Radio Club Inc

Annual General Meeting

The AGM of the Club was held on 19 July and was attended by more than 30 members and visitors. The following office bearers were re-elected unopposed for the coming year: President, Lee Moyle VK3GK; Vice President, David Armstrong VK3KXJ; Secretary, Paul Girling VK3ALE; Treasurer, Morrie Lyons VK3BCC; Committee Members, Wally Hunt VK3JWH, Harold Hepburn VK3AFQ and Jerry Viscaal VK3MQ.

VK3APC Nets

The Club nets are on air every Monday night at 7.30 pm on 146.550 MHz for members who do not have HF capability. At 8.00 pm the long running HF net continues on 3.567 MHz, plus or minus QRM. Even if you are not a member of the Club, you are most welcome to join in and have a go at gaining points for the Club Award.

Meetings and Activities

First Friday of the month: Natter Night from 7.30 pm.

Third Friday of the month: General Meeting, commencing at 8.00 pm.

Every Tuesday morning: Tuesday Group, commencing at 10.00 am.

Every Tuesday night: Hobby Group, from 7.30 pm.

For information about the Club, write to the Secretary, PO Box 58, Highett VIC 3190.

Denis Babore VK3BGS

Ballarat Amateur Radio Group Inc (BARG)

At the Annual Meeting of BARG held on Friday, 26 July the following people were elected to office to conduct the affairs of the Ballarat Amateur Radio Group Inc for the 1996/7 year: President, Gordon Cornell VK3FGC; Vice President, Mary Curnow VK3FMC; Secretary, Geoff Smith VK3ADB; Treasurer, Murray Felstead VK3AAI; Education Officer, Tom George VK3DMK; and WICEN Co-ordinator, Gordon Cornell VK3FGC.

The committee and members of BARG are looking forward to a very active and productive year this year with several ventures and activities on the go, not least of which will be the BARG HAMVENTION '96 which will be conducted over the weekend of 26 and 27 October. If you came along to last year's event, you would have appreciated the advantages of the shift in venue to the Ballarat Showgrounds; we can promise that this year's arrangements will be even better. If you weren't able to come along last year we are very sorry that you missed out, but we suggest that you mark your calender now. If you should be looking for accommodation over that weekend you should make a booking ASAP. The superior weather in Ballarat at Hamvention time encourages a lot of organisations to hold activities over this weekend and consequently Hotel/Motel/Caravan Park bookings are at a premium.

I should also mention that in the extremely unlikely event that the weather is in any way inclement, it will be of little concern as all activities (except foxhunting, of course) will be conducted under cover and in proximity to the "free coffee dispensers". We are all looking forward to seeing you at this prestigious event.

Norm D'Angri VK3LBA
Publicity Officer

Riverland Radio Club Inc

The Riverland Radio Club Inc held its seventh AGM on 4 July. In his annual report, President Tony Hutchison VK5ZAI said membership of the Club had remained static, but assets continue to grow, including an HF transceiver, power supply and PSK modem.

Tony thanked all who helped make the main event of the year, Communications 96, successful.

The WIA slow Morse practice sessions are broadcast five nights a week under the watchful eye of Kingsley Brauer VK5AKN.

After operating the BBS since its inception, Richard Tolhurst VK5AET has handed over to Ivan Smith VK5HS. Although the 2 m access cannot be used at present, 70 cm is working well.

Gary Watt VK5CWP, Chris Hedger VK5PBI and David Wilson VK5NAP were again involved with JOTA.

Tony VK5ZAI attended the WIA state conference as a delegate with Doug VK5GA as observer. Other visits were to the property of Lou Jantke VK5LE, also an inspection of the 5MV ABC studio in Renmark.

The new committee comprises: President, David Wilson VK5NAP; Vice President, Mike Mackintosh VK5CK; Secretary, Doug Tamblyn VK5GA; Committee Members, Tony Hutchison VK5ZAI, Kingsley Brauer VK5AKN, Malcolm Gardener, Adrian Reimann VK5AJR and Chris Hedger VK5PBI. **Doug Tamblyn VK5GA**
Secretary
ar

Contests

*Peter Nesbit VK3APN - Federal Contest Coordinator**

Contest Calendar Sep - Nov 96

Sep 1	Bulgarian DX Contest	(Aug 96)
Sep 1	Panama Anniversary Contest (SSB)	(Aug 96)
Sep 7/8	All Asia DX Contest (Phone)	(May 96)
Sep 14/15	Worked All Europe (Phone)	(July 96)
Sep 21/22	SAC DX (CW)	(Aug 96)
Sep 28/29	SAC DX (Phone)	(Aug 96)
Sep 28/29	CQ-WW RTTY DX Contest	(Aug 96)
Oct 5/6	VK/ZL/Oceania DX Contest (Phone)	(Aug 96)
Oct 6	RSGB 21/28 MHz Contest (Phone)	
Oct 12/13	VK/ZL/Oceania DX Contest (CW)	(Aug 96)
Oct 19/20	Worked All Germany Contest (Mixed)	
Oct 20	RSGB 21/28 MHz Contest (CW)	
Oct 20	Asia-Pacific Sprint	(Jun 96)
Oct 26/27	CQ-WW DX Contest (Phone)	
Nov 1/7	HA QRP Contest	
Nov 9	ALARA Contest	
Nov 9/10	WAE RTTY DX Contest	(Jul 96)
Nov 9/10	OK-DX CW Contest	
Nov 16/17	IARU Region 1 160 m Contest	
Nov 16/17	All Austria CW Contest	
Nov 23/24	CQ World-Wide DX CW Contest	

Those of you who missed the 160 m contest in July missed a real treat. If you thought activity on 160 was minimal, and mainly composed of local contacts, think again! Most VK call areas were well represented, there were plenty of ZLs, and even some Ws. Other DX included ZK1 and VQ9. Competition was intense, and it's decades since I heard so many stations on the band. As one ZL said, he had more 160 m QSOs that one evening than he had in his whole life!

From my own observations, several conclusions could be drawn. Firstly, it is not necessary to have an enormous antenna to put out a competitive signal, providing it is well matched and has a low resistance ground system. Secondly, a low noise receiving antenna is well worth the effort, because there are many stations who can hear you well enough, but whom you are struggling to hear (a rather pleasant change from the higher bands, where the skip often goes the other way)! Finally, it is possible to be fully competitive on both phone and CW, as demonstrated by many stations (but unfortunately not by me, as I realised this just a bit too late).

A full report on the contest will appear in due course. In the meantime, start thinking about how you can improve your station on 160, in time for next year. With more time for overseas publicity, hopefully we can attract some European activity next time (or even that elusive VQ9)!

Don't forget to submit your RD contest log. Until next month, good contesting! (For information this month, thanks to DL2DN, OK2FD, SM3CER, VS6BG, *JARL, RSGB,* and *CQ*). 73s, Peter VK3APN

Addendum

In the June issue, the NZART 80 m Memorial Contest was shown as CW only, whereas in fact both CW and phone QSOs are allowed. Please amend your issue accordingly, in case you happen to refer to it next year.

In the August issue, in the seventh paragraph, the correct name of the cq-contest e-mail reflector is *cq-contest@tgv.com*. This is not the same as the admin server mentioned in the following paragraph, *cq-contest-request@tgv.com*, which only processes subscriptions.

RSGB 21/28 MHz DX Contest

Phone: 6 October, Sun 0700 – 1900z
CW: 20 October, Sun 0700 – 1900z

The object is to work as many UK stations as possible on 21 and 28 MHz (UK includes GI, but not EI). Categories (single or multioperator) are: open, restricted, QRP, and SWL. In the restricted section, only one antenna is allowed, which must be a single element no more than 15 m high, and 100 W max O/P. The open section has no antenna or power limitations.

Send RS(T) plus serial starting at 001; UK stations will add their county code. Score three points per QSO. The final score equals the total points times the total multiplier (counties worked on each band added together). Use a separate log for each band. Send logs and summary sheets, postmarked by 14 November, to: RSGB HF Contests Committee c/o G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, England. A comprehensive range of awards is offered.

SWLs may only log UK stations making contest QSOs with overseas stations. SWL logs should be headed time UTC; callsign heard; number sent by that station; callsign of station being worked; new multipliers; points. In the column headed "station being worked" the same callsign may only appear once in every three QSOs except when the logged station counts as a new multiplier.

Worked All Germany DX Contest (CW & Open)

19/20 October, 1500z Sat – 1500z Sun

In this contest, which occurs on the third full weekend every year, the world works Germany. Categories are: Single operator all band (CW, mixed, and mixed QRP max 5 W output); Multioperator single Tx; SWL. Use 80 – 10 m, and exchange RS(T) plus serial number. German stations will add their DOK (location code). Each station may be worked once per band per mode.

Score three points per QSO, and determine the final score by multiplying by the total number of German districts (first letter of DOK) worked on each band regardless of mode. Send logs,

The antenna farm of Takeshi JA3AAW contributed to an excellent five band effort in the 1995 VK/ZL/Oceania DX Contest, earning him first place Asia!

summary and dupe sheets to arrive by 20 November to: Klaus Voigt DL1DTL, PO Box 72 04 27, D-01023 Dresden, Germany. Logs on DOS disk are welcome, if accompanied by a signed summary sheet.

CQ WW DX Contest

Phone: 26/27 October, 0000z Sat – 2400z Sun
CW: 23/24 November, 0000z Sat – 2400z Sun

Sponsored by *CQ Magazine*, these contests are undoubtedly the premier HF events of the year, and present the opportunity to work many rare countries and zones even with modest equipment. They are open to all stations world-wide, on 1.8-30 MHz (no WARC bands). Categories are: single operator; single operator low power (max 100 W output); single operator QRPp (max 5 W output); single operator assisted (for those using DX spotting nets); multi-operator single transmitter; and multi-operator multi-transmitter.

Single operator stations can enter as single or all band, and can change bands at will. Multi-operator stations must enter as all band. Multi-operator single Tx stations must stay on a band for at least 10 minutes, EXCEPT that one – and only one – other band may be used during the 10 minute period, if – and only if – the station worked is a new multiplier. Multi Tx stations are exempt from this rule, but can only radiate one signal per band at any one time.

Exchange RS(T) plus CQ zone. Score three points for QSOs with stations in a different continent, and one point for QSOs with stations in the same continent (for VKs this means Oceania as defined for WAC). Stations in the same country or call area can be worked for additional multiplier credit, but have zero points value. The total multiplier is the number of DXCC countries plus zones worked. Final score equals total points times total multiplier.

Use a separate log for each band. Show new multipliers in the log the first time they are worked, and duplicates with zero points. Entrants are encouraged to include a "dupe sheet" for each band, which becomes mandatory for 200 QSOs or more. Computer logs are welcome, and must be in ASCII on DOS disk, using separate files for each band, eg VK7AAA.20 for a 20 m log; alternatively in K1EA "CT" .BIN format, eg VK7AAA.BIN. Label the outside of the disk with the callsign, the files included, mode, and category. Disks MUST be accompanied by a paper printout satisfying logging instructions. The committee may request a disk from high scoring stations to enable the log to be checked by computer, if the log originally submitted was a computer printout.

Include a signed summary sheet, showing power output for low power and QRPp entries, and send the log postmarked by 1 December (phone) or 15 January (CW) to: CQ Magazine, 76 North Broadway, Hicksville, NY 11801, USA. Indicate Phone or CW on the envelope. Numerous awards, trophies and plaques will be awarded to the leading entrants in the various categories and countries.

Results of 1995 IOTA Contest

(Full listing in RadCom March 1996)

(Posn/call/section/QSOs/mult/score):

#20	VK4MZ	SSB	189	37	56,869
#10	VK4EMM	Mxd	97	27	21,330
#13	VK7BC	Mxd	40	29	14,355

Results of 1995 CQ WPX SSB Contest

On 7 MHz, VK3EW had the highest score in Oceania, and was seventh worldwide. Other scores are as follows:

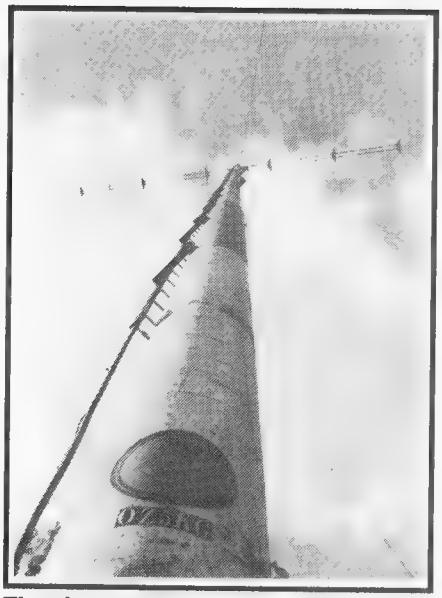
(Call/band/score/QSOs/prefixes)

Single Operator:

VK5GN	A	3,915,877	1726	587
VK3TZ	A	2,318,316	1134	572
VK2ARJ	28	27,413	127	79
VK3SM	14	5,085	133	45
VK8BE	14	1,380	25	20
VK3EW	7	3,222,576	1100	504
P29NR	A	1,124,750	932	409

Multioperator:

VK4MZ	A	5,111,600	1876	650
VK6ANC	A	1,406,886	1101	442



The six element 20 m monobander of Tom OZ5KQ, a keen contester. A 4CX1500 linear amplifier further contributes to his very potent signal.

Results of 1996 PACC Contest

(Call/QSOs/mult/score; * = certificate)

VK2APK*	42	17	714
VK4XA	22	12	264
VK4TT	14	8	112
VK3APN	6	4	24

PO Box 2175, Caulfield Junction, VIC 3175
pmesbit@melbpc.org.au

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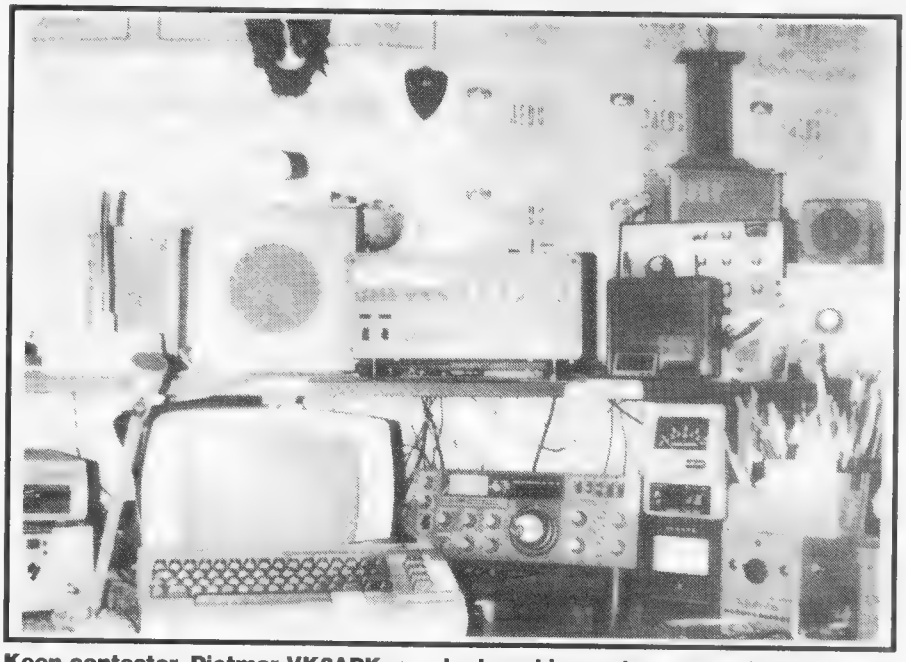


Keen contester, Dietmar VK2APK, can be heard in most overseas DX contests. This picture of his operating position shows a few of the many awards he has won over the years

Divisional Notes

Forward Bias – VK1 Notes

Peter Parker VK1PK

VK1 Member Wins Prize Rig

A VK1 Division member has won the Icom 706 transceiver in the WIA's national membership competition. George Bromley VK1KGJ was presented with the prize at the July Divisional meeting by Kiyoshi Fukushima of Icom Australia. The VK1 Division wishes George many happy hours on the air with the new rig, and thanks Icom for the donation of the prize.

Members present at July's meeting also participated in a discussion on coaxial and open wire feedlines. Appropriately, the raffle prize was 50 metres of RG213 coaxial cable. It was won by Jim VK1FF.

Symposium Date Confirmed

Mike VK1KCK, the organiser of this year's Canberra Amateur Packet Radio Group Technical Symposium, reports that this event will be held on 23 November. The Symposium will cover many aspects of amateur radio techniques, with streams for operating and technical topics. Mike invites those who wish to speak or present a paper to get in touch with him. You can phone Mike on 292 0053, or send a packet message to VK1KCK @ VK1KCM.

1996 Australasian Sprints

The VK1WI callsign was activated during both the CW and SSB Australasian Sprints, held in July. Jim VK1FF made 33 contacts on CW, while Phil VK1PJ made 51 in the SSB section.

UHF News Service Reinstated

After a long absence, the Sunday evening Divisional Broadcast can once again be heard on 70 centimetres. Relayed by Phil VK1PC, the retransmission goes to air on the 438.375 MHz Ginini repeater. Thanks to repeater linking, listeners in the Goulburn area can receive the bulletin on 438.325 MHz. Apart from this new UHF service, the broadcast may also be heard on some repeaters in southern NSW.

VK180 Receiver Update

The ceramic resonators ordered for the second batch of the VK180 receiver kits have now arrived. Short-form kits for the simple direct conversion receiver are once again available from the Division. The price is unchanged from last time – just $3 per kit.

VK2 Notes

Richard Murnane VK2SKY

Just a reminder for those of you who have fallen into the habit of faxing your news directly to Michael VK2YC, our former Broadcast Officer (along with his many other hats). Please now send your news items to the Divisional Office so they can be forwarded to me for inclusion in the broadcast.

Also, be aware that the printed submissions **must** be in the Divisional Office by close of business (2 pm) on the Friday preceding the broadcast. I have better things to do on a Saturday night than sit around waiting for late news items (ask my YL if you doubt me!). Likewise, submissions via packet or Internet e-mail should be in by Friday afternoon: make sure to allow for forwarding delays through the various networks.

All hard copy that ends up at the Divisional Office will be faxed to me, where my OCR (Optical Character Recognition) software will convert it to ASCII text. The text will then be formatted for the packet radio and Internet editions of the broadcast (these have been neglected somewhat in recent weeks, due to various technical difficulties).

Please ensure that you use a plain "sans serif" typeface (eg Arial if you use Windows), so that the text passes more clearly through the fax machine. The OCR software will then convert the text reliably (I will not be spending my weekends compensating for defective printers/fax machines, either: if the OCR can't make sense of your copy, it will be excluded from the electronic editions of the news).

Please limit your submission to about 90 seconds of air time, as we try (and frequently fail) to squeeze a large number of news items into about 45 minutes on-air. In paper terms that's one, or at the most two, pages of double-spaced text, with wide margins to allow the announcer to make notes.

Perhaps, most importantly, **check that your news item is readable**! Give your copy to someone else and have them read it to a third person. If that person understands it, then you have the makings of a readable news item and the VK2WI broadcast team and listeners will thank you.

Thought for the month:

"Pay no attention to what critics say; no statue has ever been erected to a critic." Jean Sibelius.

VK3 Notes

Jim Linton VK3PC

Articles of Association

Members who were present at the annual general meeting passed a resolution requiring the Memorandum and Articles of Association of WIA Victoria to be revised and updated. This onerous and costly task has been commenced, and a first draft completed for comment and review by Councillors.

The next step is to furnish a copy of the documents to WIA Victoria's company legal advisers for scrutiny. It is anticipated that, during this month, copies will be available for examination and comment by members, who will be given a reasonable period to respond to the draft; after which time it is intended to produce a document to present before a Special General Meeting for adoption.

Federal Finances and 1997 Subscription

A battle is continuing in the Federal WIA arena to bring expenditure under control. The office manager Donna Reilly has resigned from her position and has not yet been replaced.

The WIA Victoria Council has been concerned for some time with the cost efficiency of the Federal Secretariat and is seeking to have immediate changes made to its financial management.

In a formal communication received from the WIA Federal Secretary it was advised that the Federal Directors will seek an increase in subscriptions in 1997 amounting to $2.00 per member of each Division. The WIA Victoria Council will have, by the time these VK3 Notes are published, met and considered its position in relation to the demand for a subscription increase.

This Council passed a resolution earlier in 1996 to oppose vigorously any increase in the contribution made to Federal coffers, unless it could be properly justified.

Submission to Parliament

Time is running out for WIA Victoria members to have their say on the WIA submission to the 38th parliament on Amateur Radio Service Licensing.

A draft of the submission was published as a supplement to the April issue of *Amateur Radio* magazine.

The submission is likely to be the single most important exercise undertaken in the post-war era by the WIA which has a charter to protect and further the pursuit of amateur radio.

WIA Victoria members who wish to contribute to the review process of the draft submission have a very limited time left to put their views and comments in writing, to the Secretary.

Broadcast Re-transmission

A reminder that the VK3BWI voice broadcast can be heard at 1030 hours local on the first Sunday of each month.

It has been suggested that the broadcast be re-transmitted at another time, either Sunday or Monday night. This could be a limited transmission broadcast on a two metre repeater and the 80 metre band.

Before the WIA Victoria Council considers this matter further, members are invited to express their views regarding a re-transmission. A decision will be based on the level of support among the membership, and also take into account the existing limited human resources available which enable us to have only 12 broadcasts a year.

If you consider a broadcast re-transmission would be useful, then the Council would like to hear from you. Any submissions or comments should be made by writing to the Secretary at the WIA Victoria office.

VK6 Notes

John R Morgan VK6NT

Divisional GM

At the July GM, a near-capacity audience attended a presentation by Mike Ryan, the SMA's Area Manager for WA. It was in four sections: an official explanation of how our licence fees are calculated, a question-and-answer session covering numerous aspects of the Amateur Radio community's interaction with the SMA, demonstrations of the Agency's latest spectrum analyser equipment, and their use of the InfoMap synergistic software package to display the geographic and spectral relationships between all licensed transmitters throughout Australia. In the latter sections, Mike was ably supported by his colleague Bill Kelson, the Frequency Assigner with the local Customer Services Team.

General Meetings are held on the third Tuesday of each month in the Board Room, 3rd Floor, CWA House, 1174 Hay Street, West Perth, commencing at 8 pm. There is no meeting in December. All interested persons (members and non-members, licensed or listener) are invited to attend, and will be plied with free coffee and biscuits.

VK6WIA News Broadcasts

On behalf of the Council and members of the Division, the President, Cliff VK6LZ, would like to thank Phil VK6KS for his work in producing the weekly VK6WIA news broadcast while the Broadcast Officer, Tony VK6TS, was temporarily unavailable. The members of the VK6QC club are also thanked for permitting Phil to originate the broadcast from their shack.

Study Classes

On the evening of 14 August 1996, the participants in the Division's NAOCP Study Class are due to sit their various examinations. By the time these VK6 Notes are published, it is hoped that there will be a few new Novice and Limited Novice callsigns on the air.

Another NAOCP course is presently being planned, and an AOCP upgrade course may be conducted if there is sufficient interest. If you are interested in participating in either course, please contact the Division's Secretary, Christine VK6ZLZ, on Perth (09) 459 6218.

WA Repeater Group

The 13 members who attended the August GM heard pleasing news concerning the Hoddywell 2 m repeater (VK6RHW, 147.225 MHz). It is now most likely that the equipment, which was recently taken off the air after the site's owners became disenchanted with our occasional maintenance visits, is going to have a new home nearer to Northam. Jim VK6CA, the Site Manager, is in the final stages of negotiating the new site, which is expected to have no problems concerning access. When the re-installation is complete, the callsign of this repeater may be changed so as to reflect the name of its new home.

There was more good news when Eddie VK6KED offered to construct and install WARG's long-proposed 2 m repeater on Rottnest Island (VK6RAT, provisionally 146.750 MHz).

WARG invites you to take part in its informative and entertaining VHF net, held every Sunday morning, commencing at 10.30 am. Listen for Clive VK6CSW, signing VK6RRG on the Lesmurdie repeater (VK6RLM, 146.750 MHz). Meetings are held at the Scout Hall on the corner of Gibbs Street and Welshpool Road, East Cannington, on the first Monday of every month, starting at about 7.30 pm. The odd-numbered months are General Meetings, and the even-numbered months are Technical Meetings.

If You Have Material...

Material for inclusion in this column may be sent to VK6NT @ VK6ZSE.# PER.#WA.AUS.OC, or to PO Box 169, Kalamunda WA 6076, or via telephone on (09) 291-8275.

"QRM" News from the Tasmanian Division

Robin L Harwood VK7RH

On 13 July, Divisional Council met in Launceston, with an apology from VK7GL and VK7RN. VK7ZDJ was the chairman. Joe Gelston VK7JG was elected to fill a casual vacancy on Council and is now assistant Divisional secretary. There were several decisions made at Council, including the Operating Guidelines and Rules for WICEN in Tasmania. We are indebted to Phil Harbeck VK7PU, who is the Divisional WICEN co-ordinator and Mr P Corby VK7ZAX, our Hon Solicitor, for the work that has gone into formulating these. The new Operating Guidelines and Rules are now operational and all Branches will have copies of these by now.

The Division has run out of membership certificates and, as Membership Officer, I am aware that there are several individuals who have yet to receive theirs. If you have not received yours yet, could you please write to the Secretary/Divisional Membership Officer and let me know. The address is 5 Helen Street, Newstead TAS 7250.

There has been a re-organisation of the HF re-broadcast of VK7WI on Sunday mornings. To allow for better propagation to the mainland states, signals on 3570 kHz will now come from the northern half of the island, whilst the 7090 kHz transmission will be coming from the south. The 20 metre relay is unaffected, as is the Tuesday night re-broadcast prior to the Tasmanian Devil Net. Please note that you can fax your news to the Broadcast Officer at (03) 62 293402.

On 19 August, all telephone numbers in Tasmania had two extra digits added and the three separate area codes were abolished. The area code for Tasmania is now 03 and numbers formerly in the 002 area code are now prefixed by 62, 003 by 63, and 004 by 64. So the Divisional phone number is now (03) 634 42324. Don't worry you have six months to get used to it!

Council also welcomed the following individuals to the Division: Ralph Bradshaw VK7RV; Allan Van Dullem VK7KAN and Brian Stevenson VK7HSB.

The Southern Branch will be meeting on 4 September 1996; the venue will be given on VK7WI. Last month they visited the Police Communications Centre.

The Northwestern Branch will be meeting on Tuesday, 10 September 1996 at 1945 hrs at Penguin High School, Dial Road, Penguin.

The Northern Branch met last month at the studios of Launceston's commercial TV station, and received the resignation of the President and Secretary from the branch and the WIA. Listen to VK7WI for the date and venue of the September meeting.

ar

How's DX

*Stephen Pall VK2PS**

As I write this, the 26th Olympiad at Atlanta is in full swing. During the past week many VK and ZL radio amateurs spent less time than usual at their radios, and more time than usual before their television sets watching the international sporting spectacle passing before their eyes.

The bands were also busy with special calls originating from the USA, all celebrating the special event. K400PI and KD000DI were very busy together with the official Atlanta special event station W40 which had huge pile-ups on the bands.

My mind wandered back to the Barcelona Olympics in 1992. There was a "Radio Amateurs Barcelona 1992 Activity" organising committee which provided a variety of programs for the international radio amateur fraternity to take part in the Barcelona games. There was an Olympic Award Program with sixteen official Olympic Stations spread among the main cities of Spain, all with EH92 special prefixes and different one letter suffixes.

There was also the Olympic HF Contest with an interesting multiplier system where the prefixes of each DXCC country which had previously organised Olympic Games had special point value. There were 17 such prefixes. Contact with the 16 special event Spanish stations also carried additional points.

And the winners of the Contest? A certificate was awarded to the first three placings in each mode category, and an Olympic medal for those classified in the first three of each continent in each category and a medal and special trophy for the world leader in each category.

Six months later a series of colourful QSL cards in the Spanish national colours were pouring out of the QSL bureaux drawers.

What about Sydney 2000? Are we ready as Australian amateurs to tackle the huge task? I recall a 16 line news item in the March 1995 issue of *Amateur Radio* on page 18 which said that the WIA had applied to the Spectrum Management Agency for the Special event callsign AX2000 (A-X-two thousand).

The SMA replied that they had applied to the International Telecommunication Union (ITU) for permission to use the callsign, but the ITU's reply was that the use of such a callsign is prohibited.

"However all is not lost", says WIA News, "the WIA may use AX2OOO (A-X-two-triple oh) during the Sydney Olympic games."

One hopes that all those who are organising the amateur activity celebrating the Sydney Olympics in four years time are well advanced with their planning. A lot of hard work is still ahead, liaising with the organising committee, getting a variety of permissions, running the bureaucratic maze, designing QSL cards, getting prizes, getting sponsors for printing costs, etc. Time is not on our side. I wish them luck!

Ashmore Reef – VK4ALF/VK9

Steve AA6LF who, with his wife Tina, is circumnavigating the world in a small boat, spent the last six months in Northern Australia, mainly in Queensland, activating a number of islands to the delight of those who follow the IOTA (Islands on the Air) program. He showed up on the IOTA frequencies on 2 August from Ashmore Reef.

The island group of Cartier Island and Ashmore Reef is situated at Lat 12° 32' South and 123° 33' East, about 340 miles north of Derby, West Australia. Ashmore Islands, as the reef is called (East, Middle and West Island), lie about 30 miles to the north-west of Cartier Island. All of the islands are small and low, and are composed of coral and sand. Vegetation consists mainly of grass. Turtles, at certain times of the year, and sea-cucumber are abundant. The islands are uninhabited.

Great Britain took formal possession of the Ashmores in 1878 and Cartier was annexed in 1909. In 1931 the islands were placed under the authority of Australia.

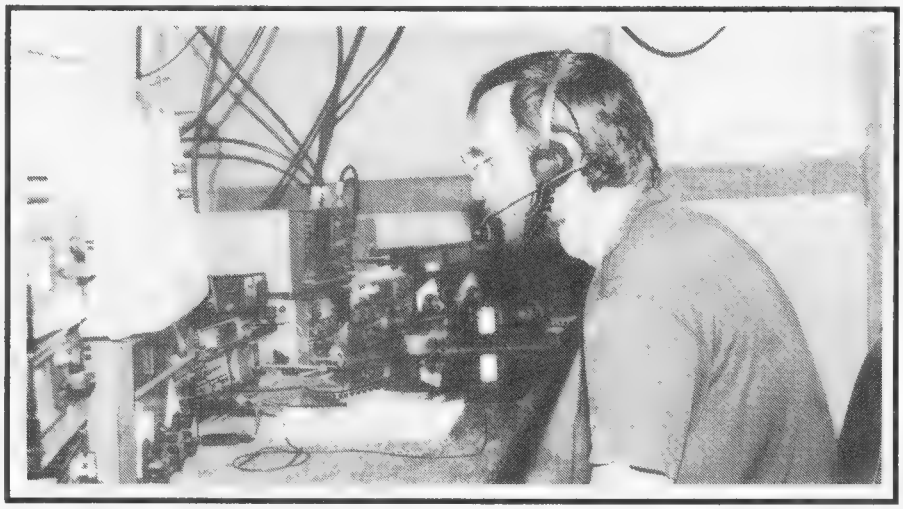
Steve left the Ashmores after three days and is now proceeding to Indonesia. He arrived on Ashmore at 0130 UTC on 2 August. It took him two hours to establish his station on West Island. As the area is a marine and estuary preservation area, his landing permit allowed him to operate during the local daylight hours only, which was usually from 2300 UTC to 1000 UTC. The purpose of the restriction is the protection of the breeding turtles which, at this time of the season, are congregating on the island. The change of the tides also influenced his landings. At dusk he removed his ICOM 735, Butternut vertical and batteries from the island, spent the night on the boat, and next day set up the station on dry land.

He stayed only three days on the reef and in the first few hours of his activity he made about 60 QSOs and worked 8 countries. Send your QSL card with the usual return address and postage to his QSL Manager, Gerald D Branson AA6BB, 93787 Dorsey Lane, Junction City, OR-97448, USA.

Heard Island – VK0 Update

In a fax sent to me early in August, Ralph K0IR, said: *"We continue with our plans for Heard Island. Still scheduled to sail from Reunion Island on 3 January, and anticipate arriving at Heard Island on approximately 12 or 13 Jan. One 20 ft sea-container will leave the West Coast of the US headed for Reunion on 1 Sept. Another will leave on 1 October. The team will begin assembling on Reunion during the last week of December. This expedition should have one of the best and most elaborate arrays of low band antennas ever assembled for a DXpedition. If amateurs need Heard Island on the low bands, this will be the opportunity to work it. Of course we will have excellent antennas on the other bands as well, including satellite.*

We are still in need of funding to help to offset the tremendous financial burden on



Rich HC8A on San Cristobel Island, Galapagos Group.

The antenna collection of Uli LA0CX, the well known Norwegian DXer.

each of the team members. As we get nearer to our sailing date, we hope more contributions will come in."

Donations should be sent to Bob Schmieder, Cordell Expeditions, 4295 Walnut Blvd, Walnut Creek, CA 94596 USA.

North Korea – P5

During the past months a number of messages from "well informed" sources suggested a proposed early activity from North Korea. A Hungarian group of operators were allegedly ready for immediate action. However, the reality is somewhat different. Laci HA0HW, the QSL Manager of Sanyi HA7VK who is at present in North Korea and has applied for a licence to operate from there, reports that Sanyi has received the following letter from the Minister of PTT, DPRK, regarding his licence application: *"Dear Mr Sandor Csige. On July 5th 1996 I received your kind letter. Your letter informed me that you serve good purposes. However, I'm required to inform to you, that I can't give you positive answer. Yours sincerely, Eim Hak Sob, Minister of PTT."*

Palestine – ZC6

In June 1966 a Japanese amateur group led by Yoshi JA1UT with JA1UPA, JA8CDG, JA8RUZ/KH2 and G3NOM was active from Palestine using their own callsigns with the ZC6 suffix. They made approximately 6000 QSOs on 7, 14 and 21 MHz, CW, SSB and RTTY mode.

A press release issued by JA1UT and G3NOM said: *"The operation was linked with a United Nations project, to improve communication between certain hospitals and ambulances in the Gaza area and to establish communications at the newly constructed Palestine International Airport. Amateur radio was a secondary activity."*

As a DXer, one wonders when Palestine will become a new DXCC Country. The Palestine Authority has a National Assembly, issues its own postage stamps and passports, has its own police force and judicial system, and has a Ministry of Posts and Telecommunications that assigns frequencies and licences for telecommunication services in Palestine. It already has draft regulations for the amateur radio service. Three Palestine nationals already have licences, and arrangements are in place for a club station at the MPT Headquarters. Equipment and antennas have been donated by the JA1UT group.

One only hopes that Palestine will soon join the multitude of DX countries under the DXCC award system.

Future DX Activity

* Bernhard DL2GAC, well known for his activities under the H44MS callsign, advises via Frank YJ8AA that he will be in India in Nov 1996 together with his friend DF9FN, both operating SSB and CW. In January 1997, he and other German friends will be active again in the Pacific area.

* Jim VK9NS hopes to be able to visit Mani VU2JPS on Andaman Islands in the first part of September.

* Dave WJ2O plans to be active from Swaziland in October.

* Paul KK6H will be in Tonga for at least six months using the callsign A35RK on 10 to 40 metres, mostly on CW and RTTY. QSL to W7TSQ.

* Fred Laun K3ZO will be operating from Thailand, for one month from 15 September, as HS0ZAR. QSL to home call, callbook address.

* Maike DL4XS, Dieter DL3KDV and Mirko DL6ET will be on Mayotte (FH) between 9 and 11 September. They are planning to be active on all HF bands with major emphasis on the low bands. QSL to DL4XS at (new address): Maike Stargardt, Friedrichstahl 21, 51688 Wipperfuerth, Germany.

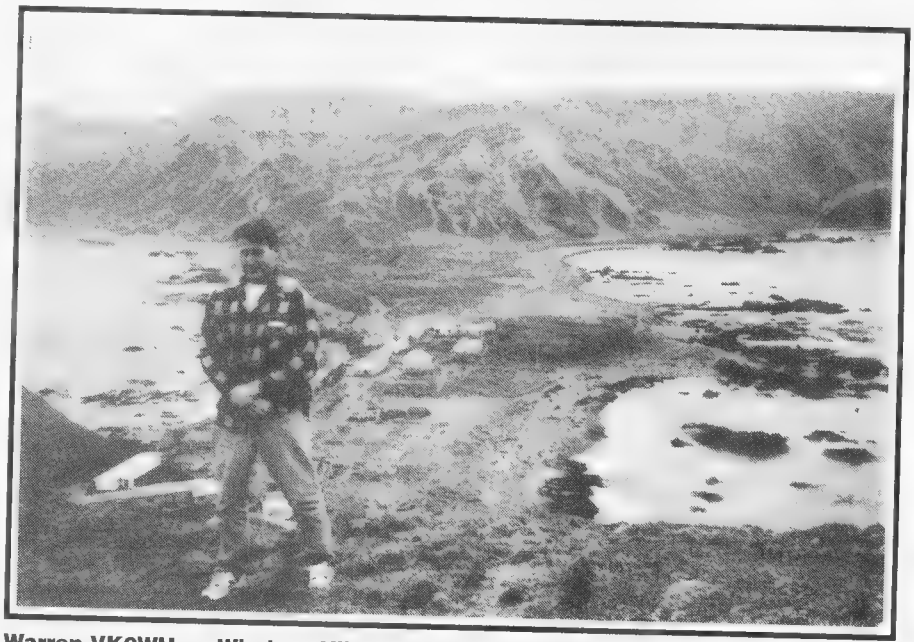
* HH5HK David is resident in Haiti. He was heard on 14160 kHz around 1245 UTC. QSL to W3RM.

* Gary WA1JBB who, for the past three years, was active from Gambia as C53HG, is moving to Namibia V5. He hopes to be active by September. His QSL Manager is W3HCW.

* The Danish branch of the International Police Association will be active from Nuuk, Greenland from 28 October till 11 November on 10 to 160 metres CW using the callsign OX3IPA. QSL direct only to OZ5AAH.

* There will be some SSB/CW activity from Benin, with the callsign TY1RY, preceding the CQ WW RTTY contest on Sept 28. QSL direct only to Eddie Schneider, PO Box 5194, Richmond, CA 94805, USA.

* Mike will be active again from Saudi Arabia with the callsign 7Z5OO. QSL to W1AF.



Warren VK0WH on Wireless Hill, Macquarie Island with the ANARE Base in the background.

Interesting QSOs and QSL Information

* CP0ARA – Rene – 3798 – SSB – 1122 – June (E). QSL to Rene Zegarra Paz Soldan CP1FQ, Box 3102, La Paz, Bolivia, South America.

* CY0AA – 14025 – CW – 1333 – June (E). QSL via Roger H Mayer WD8SDL, 5639 Monica Ct, Cincinatti, OH 42238, USA.

* FR/G/FH5AM – Manuel – 14160 – SSB – 0623 June (E). QSL to the Manager, Manuel, BP 44, Dzaoudzi, CP-97610, Mayotte, France.

* KC6BP – Jeff – 14025 – CW – 0731 – June (E). QSL via Hunson Kaz Soong AA8HZ, 3902 N Michael Road, Ann Arbor, MI 48103, USA.

* FO0REB – Mario – 3799 – SSB – 1049 – July (E). QSL via Mario Rebufello CX4CR, Priamo 1505, 11400 Montevideo, Uruguay, South America.

* JW7QIA – Peter – 14234 – SSB – 1235 – July (E). QSL via Sandnesgruppen Og Jaerengr LA8D, av NRRL C/o Odd Egil Heradsveit, Box 88, N-4301 Sandnes, Norway, Europe.

* P40Z – Dennis – 7005 – CW – 0654 – July (E). QSL via Dennis R Motschenbacher AA7VB, 0110 SW Porter St, Portland, OR 97201, USA.

* 3Z0PEA – 14006 – CW – 1408 – July (E). QSL via SP1NQF via QSL Bureau.

* OI0NJV – 14202 – SSB – 1343 – July (E). QSL via Reijo Joki OH3NVJ, Sivakkat 7, SF-15880, Hollola, Finland.

* K000DI – Dave – 14186 – SSB – 0627 – July (E). QSL via David B Kunkee K0DI, 3330 N 53rd Street, Lincoln, NE 68504, USA.

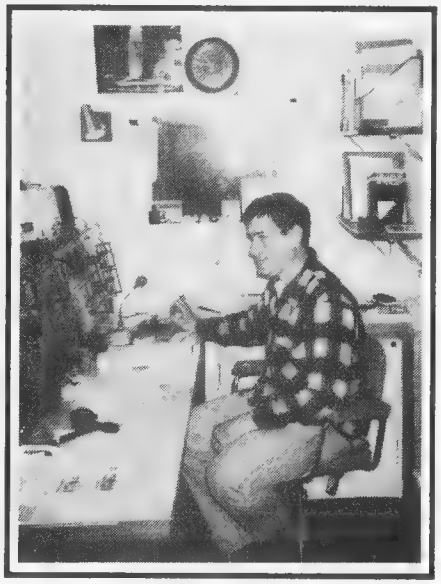
* FR5FC – Patrick – 14164 – SSB – 0546 – July (E). QSL direct only, via Patrick Benard, RN1 Trou D'eau, BP 98, F-97434 Saint Gilles Les Bains, Reunion Isl, France.

* K6W – 14164 – SSB – 0529 – July (E). QSL via the W6 QSL bureau.

From Here and There and Everywhere

* Rolf XV7SW is still active on the lower bands. *"But it is such hard work"*, he said in a note to me. *"I have great difficulties in hearing anything on the lower bands at present due to the cyclone season. I have just ordered a JPS digital filter hoping that this might help."* Letters to XV7SW seem to be on the safe side. He replies within four weeks, and it takes only five days for the letter to reach Sydney from Hanoi. Rolf's address is Rolf T Salme, Embassy of Sweden, Box 9, Hanoi, Vietnam.

* Stuart VK8NSB's proposed August activity from Croker Island has not eventuated. A number of circumstances, including the absence of an operator with full call privileges, caused the cancellation of the planned IOTA DXpedition.



Warren VK0WH in the ANARE Base operating shack on Macquarie Island, using a straight key.

* Macquarie Island was quite active at the end of July and early August. After some antenna work, Warren VK0WH was able to spend a number of days on the ANZA net on 14164 kHz at 0500. Many VK, ZL and Americans had their first VK0 contacts with Warren which made everybody very happy.

* The ARRL DXCC 2000 Ad Hoc Committee met on 21 July and discussed, amongst other things, the following topics: history and cost of DXCC; international aspects; how to seek membership input; and basis and purpose of the program, etc. The committee has decided to meet again in the Northern Autumn.

* It is that time again. The 24th SEAnet Convention will take place in Madras, India from 22 to 24 November. The convention is organised by the Madras Amateur Radio Society, PO Box 2274, 38 Arcot Road, Vadapalani, Madras, 600026, India. Tel/Fax (91) 44 832047. An interesting program combining culture, sightseeing and amateur radio is in the offing for those who want to attend. Contact the Society for further information.

* Nodir EY8MM says that amateurs resident in some former Soviet Union republics like Kirghizstan (EX), Tadzhikistan (EY), and Kazakstan (UN) have some problems with their local post. Best to use the Bureau system if you are not in a hurry; but for direct requests do not send green stamps, only two IRC, no reply envelopes but pre-addressed stickers.

* The new address of the Uzbekistan (UK) QSL Bureau is Uzbek Radio Amateur Federation, PO Box 0, Tashkent, 700000 Uzbekistan, CIS.

* The official Olympics commemorative station W40 was very active from Atlanta, Georgia during the Olympic games.

* Craig A35CT is leaving Tonga permanently. With his departure there will be no functional "A3" QSL Bureau. Craig has been the "Bureau" for the past four years.

* Bill VK4FW has reminded me that the Oceania DX Group is not "his" group (see *Amateur Radio*, July 1996). It is a four months old independent DX group with nearly 50 members in over 15 countries. Bill is only the Secretary/Manager of the group. Other office holders are Jon VK4CY, President; Vickie VK2IVK, Senior Vice President; Elvira IV3FSG, Junior Vice President; and Carl N4AA, Director. The group has a net every Saturday on 14245 kHz at 0330 UTC and again on the same day at 0930 UTC on 3620 kHz. Postal address is ODXG, PO Box 929, Gympie QLD, 4570.

* F08DX is the special call of the Bora Bora Radio League situated on Bora Bora Island in French Polynesia. All QSLs go to N6VO.

* It was reported that Chris ZS8IR had made nearly 3700 QSOs with 113 countries, 48 ITU Zones and 35 "CQ" Zones as at early July.

* Ali, one of the operators at 5A1A, attended the Friedrichshafen Ham Radio Convention in Germany where he met many present and future DXers who intend to go to Libya. Three Bulgarian amateurs planned to be on the air in August from Libya. Brendan G0UCT said that preparations were well under way for a future activity and Andy DJ7IK says that he is planning a contest operation for next year.

* The DXpedition by the Central Arizona DX Association to Midway Atoll from 18 to 25 August marked the turning over of Midway from military control to civilian administration, namely the US Fish and Wildlife Service, and renaming the atoll the "Midway Atoll Wildlife Refuge".

* The World Radio Team Contest 1996, known as WRTC, has taken place during the IARU HF Contest on 13 and 14 July. It was also dubbed "Radio Olympics". The teams operated from the San Francisco area and all of them used more or less the same type of equipment. All were issued with American 1 x 1 callsigns, eg W6X. This year 52 official teams took part from: W, VE, DL, 9A, LZ, OH, UA, JA, LY, S59, OK, EA, SM, ZS, YT, LU, F, UT, HA, G, I, SP, UN and PY. Australia was represented by the team of

VK5GN and VK2AYD, who were placed 45th out of the 52 entries with a total points score of 337,152 from 1,822 QSOs using the callsign W6Z. The top scorer was an American team, W6X with a total of 761,829 points out of 2,457 QSOs.

QSLs Received

FG5FC (4 w F6DZU); HG1S (4 m HA1KSA); XV7SW (4 w op); VK9CR (5 m DK7NP); VK9XM (3 m JA1BK); 9J2BO (1 m W60RD).

Thank You

Many thanks to my fellow amateurs whose assistance is always very much appreciated. Special thanks to VK2XH, VK2KFU, VK2TJF, VK8NSB, VK9NS, L40370, K0IR, XV7SW, YJ0AA, *The Australian Encyclopedia,* and the publications *QRZ DX, The DX Bulletin, DX News Sheet, 425 DX News, ODXG, INDEXA, The ARRL DX Desk, and Go List QSL Managers list.*

**PO Box 93, Dural NSW 2158*

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WIA News

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of July 96.

L21021	MR N J JACKSON
L21022	MR J MCELVENNY
L30937	MR M SILVASICH
L30938	MR M LESLIE
L40374	MR RW GROVES
L40376	MR C CONNELLY
VK2AKL	MR G R CROTHERS
VK2BNZ	MR T E GRIFFITHS
VK2FHY	MR N KENJO
VK2GQQ	MR J MOURITSEN
VK2HJM	MR J MCVAIGH
VK2KCE	MR A J MCLEAN
VK2LX	MR M J FLEMING
VK2TJY	MR D A COOPER
VK2UTS	MR C H DURHAM
VK3COS	MR R A BAINES
VK3EKB	MR K G BODE
VK3GFW	MR G WILSON
VK3III	HORSHAM ARC
VK3TJD	MR J DICKINS
VK4AGW	MR A WOOD
VK4BIT	Mr N HARDISTY
VK4CUJ	MR DL JONES
VK4PRS	MR R SCHILLING
VK4WIR	ROCKHAMPTON & DISTRICTS ARC
VK4WOU	MR WG UNDERWOOD
VK6WA	MR L HARRISON

Over to You – Members' Opinions

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

Support for Editor

I am amazed to hear in our local NSW Sunday news of the interference to your editorial activities.

The freedom of the press, and speech, are vital to the continuance of our democratic way of life and must be fought for at all costs. I have always felt that the magazine suffers from too much censorship as is.

The local state issues are heavily controlled by their writers leaving a very bland and non-informative magazine. As an example, practically nothing was ever published during the recent, and present, upheaval leaving members at the mercy of the rumour mills.

It is the duty of the magazine to inform WIA members as to what is going on in their organisation and I would ask you to ensure that this happens.

John Saunders VK2DEJ
PO Box 299
Ryde NSW 2112

More Support

Last Sunday (30 June) I fired up my HF transceiver for the first time in about four years, having moved house in the meantime and not yet having proper antennas erected.

I was fortunate enough to tune into the VK2 Divisional Broadcast to hear their President talking (very supportively) about you.

I just thought I'd let you know that I fully support his comment. Your job as I see it, and so well carried out, is to edit the magazine and to present differing views on all matters relating to amateur radio, without censorship unless the material is obscene or libellous.

A healthy society is one which asks questions and presents differing viewpoints, and not one which is fed with the censored views of a few. In that sense, *Amateur Radio* is doing an admirable job, and I applaud your efforts.

Don Jackson
VK3DBB
55 Ryan Road
Pakenham VIC 3180

An Appeal

You were kind enough to publish in *Amateur Radio*, October 1992, my letter regarding the formation of "The Beaufighter Association of Western Australia". I am happy to report there was a most gratifying response from radio amateurs country-wide and that the Association is now very firmly established.

At a recent meeting it was decided to establish, within the Aviation Museum, Perth, a distinct section devoted to the Beaufighter and Beaufort aircraft which served Australia so well in WW II and also in England and the Mediterranean.

An informative display needs aircraft parts, such as flying instruments, navigation and radio equipment, also personal items like flying clothing, badges of category and rank, pieces of aircraft structure, and lumps of "flak", etc together with photographs, personal and official documents, letters, citations, published material, and old newspapers, etc.

The Museum staff can copy, enlarge and restore the photographs and documents and maintain control over all items. If desired, they will be returned to contributors.

We would also appreciate hearing of any possible source of suitable bits and pieces (eg on the Internet we find there is a derelict Beaufighter off an island in the North used for practice SCUBA diving!).

Radio amateurs are prolific squirrels but it would be good to share with future generations an image of those hectic days. If desired, the donor's name can be shown on any item.

Our Association regards this as a most worthwhile project and would appreciate any items, no matter how seemingly ordinary. Kindly contact:

Sam Wright VK6YN, 19 John Street, Gooseberry Hill WA 6076 (tel 09 293 3506)

Keith Nicholson, 19 Lillian Street, Cottesloe WA 6011 (tel 09 384 4627)

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Pounding Brass

*Stephen P Smith VK2SPS**

CW operation to the beginner must be very confusing when you consider the variety of keys and keying equipment currently available on today's market. I have attempted to simplify this by dividing the equipment into three categories, manual, mechanical and electronic, which I will discuss briefly in turn.

Manual

The manual key is also known as the pump key or the hand key, being basically an on/off switch with few adjustments when compared to the more complex mechanical variety.

Adjustments consist of a forward set screw to set rear contact spacing (moving this screw up or down brings the rear contact closer or further apart), and a spring tension adjustment which tensions the arm depending upon the downward force applied to the knob by the operator.

The manual key has been around for nearly 150 years and is still the mainstay of Morse transmission today, although the electronic keyers are more in favour.

The basic manual key was invented by Alfred Vail in 1899 and was named the "Correspondent". From its humble beginning it has undergone many physical changes but its basic operating concept has remained the same, that is an on/off switch.

The most important factors are the ease of operation and operator comfort. In Australia we rely heavily on British influence. This shows in our keys. When compared to American design we operate the key with the forearm held above the table. Keys used with this operating style are the familiar PMG type and the Clipsal. On the other hand, Americans rest their forearms on the table, so the key used will be low profile. It is easy to distinguish between the two. A high profile is measured from the bottom of the key base to the top of the operating knob, and can be anywhere from 80 – 100 mm. On the other hand, a low profile can be anywhere from 15 – 25 mm. I do not know why these two different styles have developed, but you should use the style with which you feel more comfortable.

Speed was a major concern. A good operator could send anywhere from 30 – 38 wpm, but not much beyond this point. He could only send high speed for short lengths of time before loss of wrist action, commonly known as "glass arm". This problem was overcome by the introduction of the "Bug".

Mechanical

The semi-automatic key, commonly called a Bug or Speed Key in America, or Jigger here in Australia, was invented by Horace Martin in the early 1900s.

The Bug revolutionised code sending. Speeds in excess of 45 wpm could easily be achieved. The semi-auto will send a string of precise dots when the dot level is activated, the amount of dots sent being determined by the position of a movable weight on the pendulum, one end of which is free and the other end is fixed to a spring which is attached to the base support.

Some operators place two or more weights upon the pendulum to decrease dot speed. Dashes are produced manually by pushing the lever in the opposite direction.

One problem facing operators with semi-autos is matching the speed of the dashes, or their spacing, to the mechanically generated dots. If the dots are sent too quickly (due to the weight being incorrectly positioned or not heavy enough) in relation to the dashes, the sending rhythm will be out of synch. I will not go into adjustment at this stage as mechanical keys are much more complex to adjust and operate than a manual key; but, with a proficient operator, beautiful sounding Morse can be generated from these mechanical marvels.

The only company which produces Bugs is the "Vibroplex" Company in the USA. Here in Australia they can be purchased from Daycom Communications Pty Ltd, and range in price from $260, to $420 for the Gold Base version.

Another version of the mechanical Bug is the "Sideswiper". It is not as popular as the above, but has its followers. Basically, the key is a simple paddle that closes the circuit when the lever is moved either right or left. Under operating conditions the operator usually moves the lever in alternating directions to manually generate successive code elements whether it is dots or dashes.

Timing is more critical with these type of keys than any others if the correct ratio of 3:1 is to be achieved.

Electronic

Both single-lever and dual-lever paddles are very common today on the amateur bands, and are more commonly used by operators who prefer to operate at higher speeds than the manual or semi-auto operator. Quite a few still use a single-lever paddle and don't operate at an excessive speed which would make the change to a dual-lever paddle worth the effort. On the other hand, if you require to be a top notch operator, iambic is the way to go.

A keyer is an electronic circuit that can automatically produce a continuous string of dots when one paddle contact is closed, and a continuous string of dashes when the other paddle is closed. The iambic keyer goes one step further. If both paddle contacts are closed simultaneously, the keyer will produce a string of alternating dots and dashes.

Any paddle simply consists of two "on/off" switches which are closed to control the circuit (keyer). An iambic paddle is one that allows the user to close both switches either separately or simultaneously, to allow for iambic keying.

Remember that any dual-lever paddle may be called an iambic paddle, because it is the keyer, and not the key that determines the form of code generated. We will continue with iambic keyers next month.

**PO Box 361, Mona Vale NSW 2103*

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Stolen Equipment

The following equipment has been reported stolen. If you have any information that may lead to the recovery of the equipment, please get in touch with the advised contact as soon as practicable.

Make:	Yaesu
Model:	FT-290R
Serial Number:	3-280-766
Type:	Portable transceiver
Accessories:	YM-47 mic, plastic carry case and strap
Stolen from:	Blackwood High School
Date:	July 1996
Owner:	Adelaide Hills Amateur Radio Society Inc
Callsign:	VK5BAR
Contact details:	PO Box 401, Blackwood South SA 5051

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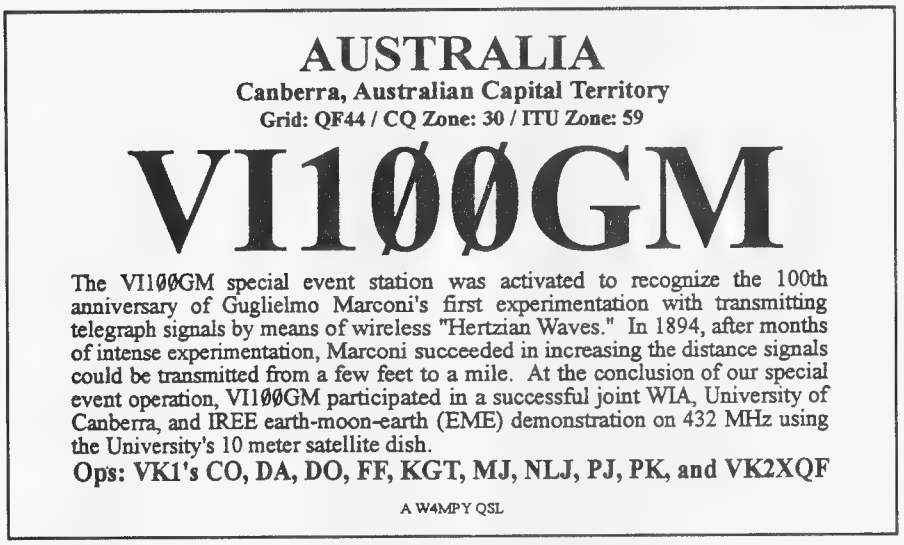
QSLs from the WIA Collection

Ken Matchett VK3TL Honorary Curator WIA QSL Collection*

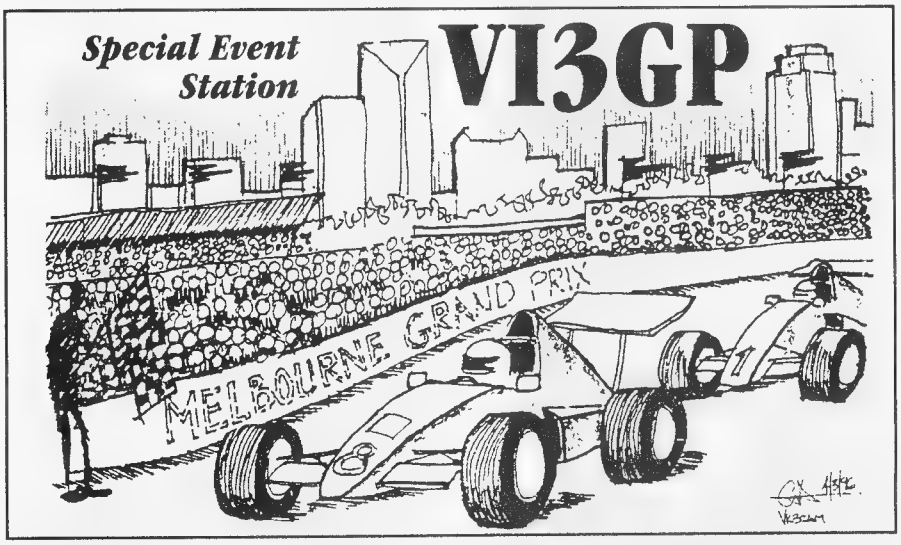
VI100GM

The celebration of the 100th anniversary of Marconi's first experimentation with radio transmission saw the issue of the VI100 prefix for the first time. Half of the 900 or so QSOs made during the special event operation were on CW (by Jim VK1FF), and the remainder on SSB by other operators listed on the QSL. The greatest interest came from overseas operators wishing to work the group on 70 cm via moonbounce. The latter was a highly successful operation, contacts being made with stations in Europe, North America and Asia.


AUSTRALIA
Canberra, Australian Capital Territory
Grid: QF44 / CQ Zone: 30 / ITU Zone: 59
VI1ØØGM
The VI1ØØGM special event station was activated to recognize the 100th anniversary of Guglielmo Marconi's first experimentation with transmitting telegraph signals by means of wireless "Hertzian Waves." In 1894, after months of intense experimentation, Marconi succeeded in increasing the distance signals could be transmitted from a few feet to a mile. At the conclusion of our special event operation, VI1ØØGM participated in a successful joint WIA, University of Canberra, and IREE earth-moon-earth (EME) demonstration on 432 MHz using the University's 10 meter satellite dish.
Ops: VK1's CO, DA, DO, FF, KGT, MJ, NLJ, PJ, PK, and VK2XQF
A W4MPY QSL

VI3GP

This well-designed QSL celebrated the inaugural running of the Australian Formula 1 Grand Prix in Melbourne. The event took place amid considerable controversy at Albert Park in March 1996. The special event callsign was the brainchild of the progressive Melbourne radio club, the Eastern and Mountain District Radio Club. Operation was mostly confined to the HF bands, over 100 DXCC countries being logged.



H70O

This prefix, H seventy O, is one of the new Nicaraguan prefixes, which looks remarkably different to the YN prefix to which we have been accustomed for so long. In fact, some of the H prefixes are quite new. Cyprus (5B4) has issued the H25 prefix, and Panama (HP) the H31 prefix. We are quite used to the H4 prefix of the Solomon Islands and the H5 prefix of Bophutatswana.

The H70O QSL celebrated a DXpedition to the Island of Ometepe, an island of two volcanoes and home to about 15,000 people of indigenous origin.

Thanks

The WIA would like to thank the following for their kind contribution of QSL cards to the National Collection: Percy VK4CPA, Lindsay VK4GZ, Bob VK6MQ, Mike VK6HD, Jim VK9NS, Bob VK5MM, and Jim VK4BX and the Hervey Bay ARC. Also the family and friends of the following SKs: John Matthews VK3WJ (courtesy of Gordon, VK3GB); and Bernie Kellow VK5PAE (courtesy of John VK5FOX).

**4 Sunrise Hill Road, Montrose VIC 3765*
Tel (03) 9728 5350

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Repeater Link

*Will McGhie VK6UU**

CTCSS Decoder

Using the NE567 as a CTCSS decoder is nothing new. However, there are few ICs that are available at a reasonable price for CTCSS decoding. The newer ICs generally require more complex circuitry. They do provide faster and more reliable decoding than the NE567; however, for simplicity, cost and availability, here is a simple design using the NE567.

The NE567

The NE567 is a phase lock loop chip with a logic output. When the incoming signal is within a cycle or two of the internal oscillator, the internal oscillator is able to shift its frequency to that of the incoming signal. The two signals then phase lock and a logic output is produced. This logic output can then be used to control circuitry such as an audio mute, or a repeater link system.

The Circuit

The audio input to the NE567 must come from a source that has good low-frequency response. This audio source does not have to be muted. The audio level required is around 200 mV peak to peak. Lower levels slow down the decode time, which is typically under half a second. Also, the audio source should have much of the speech removed, hence the low pass filter made up of R1, C1 and R2, C2.

C3 and C4 control the phase lock loop delay and frequency bandwidth window. With the component values shown, and 200 mV input, the decode time is under half a second and the bandwidth plus and minus 4 Hz.

As the internal oscillator runs all the time, the decoder can also be used as an encoder. For lowest harmonic content, use pin 6 rather than pin 5. The July 96 *Repeater Link* column shows how to use the NE567 as an encoder, and how to reduce harmonic frequencies from the triangular wave form. The low pass filter shown from pin 6 is a high impedance output, and would require a buffer amplifier, as shown in the July 96 column.

RV2 is a multiturn potentiometer to allow for fine frequency adjustment. With the values shown, RV2 will adjust the frequency from 40 Hz to about 400 Hz. With the circuit I constructed, adjusting RV2 to 123 Hz resulted in the value of RV2 being 5.6 kilohms.

Note the use of MKT capacitors. It is most important to use an MKT type for C7. I used MKT capacitors for all, except the values above 1.5 µF.

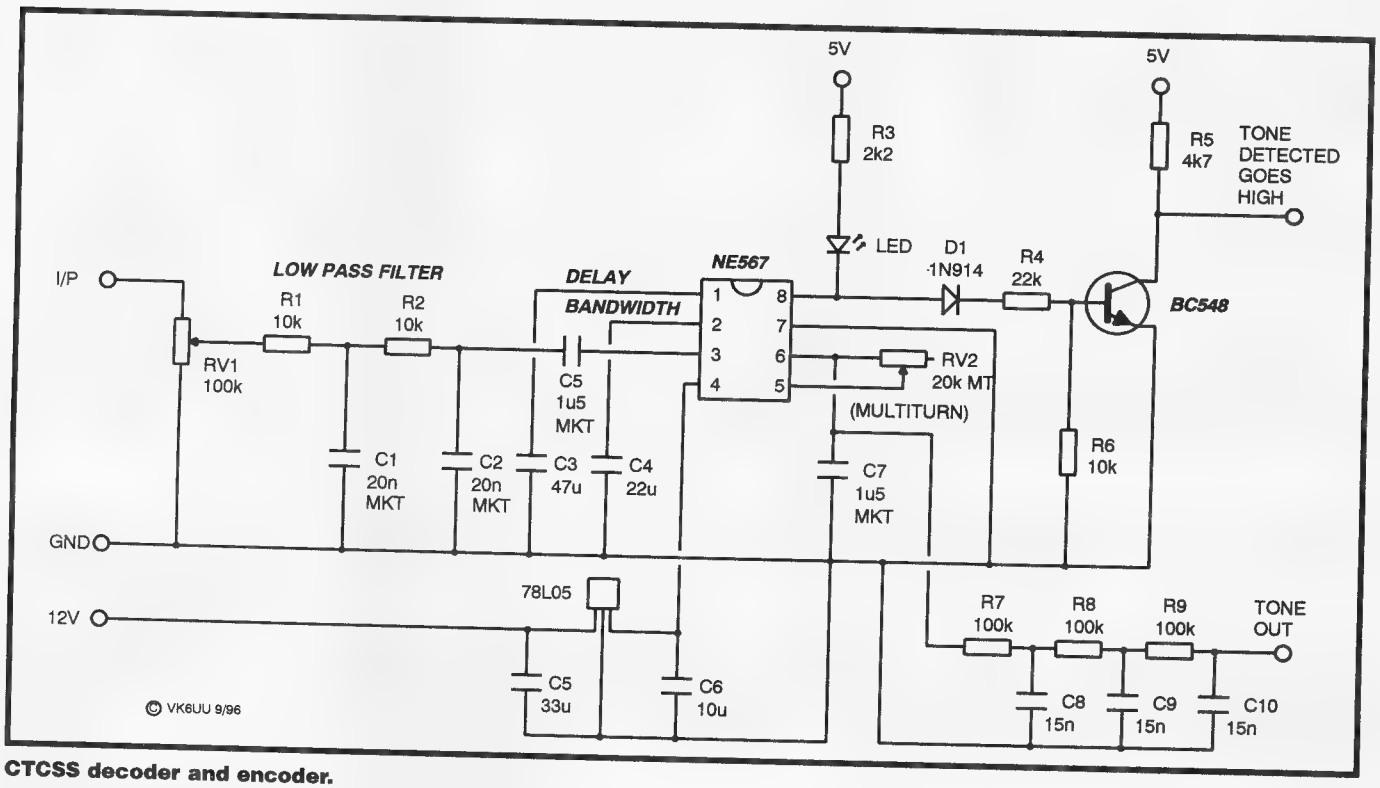
The LED lights when the circuit decodes an incoming CTCSS tone. The output transistor produces a logic high on decoding a CTCSS tone. The diode D1 is a good idea, as some NE567s don't go below 0.6 of a volt on decode. Sometimes there is enough voltage to hold the transistor on. The 0.6 volt drop across D1 and R6 overcomes this problem.

Adjustment

This requires adjusting RV2 to the required frequency you wish to decode, as measured at pin 5. A frequency counter is the easiest way to do this. Without a frequency counter, a CRO can be used to measure the frequency. If you have a dual trace CRO, compare a known frequency on one trace to the NE567 frequency on the other trace. If you have no suitable test equipment, slowly adjust RV2 until the lock LED lights with the required input CTCSS tone to pin 3. RV1 should be adjusted for 200 mV peak to peak (70 mV RMS) as measured at pin 3.

10 Metre Gateways

You may be interested in what progress has occurred in allowing 10 metre gateways to operate on the 29 MHz FM segment. After considerable communication between a number of interested amateurs and FTAC, we are at a point of deciding where in the 29



CTCSS decoder and encoder.

MHz segment gateways can be placed. This is a difficult process as there are many calls for segments of the 10 metre band to be satisfied. There may be little activity in the entire 1.7 MHz of the 10 metre band, but it all has to be allocated. Also of concern is the international situation, as this band has to be seen in the context of international propagation and other countries' usage.

However, all the difficulties aside, it sure is taking a long time to decide where to allocate a couple of FM channels for gateway use. In VK6 a gateway system was installed and became operational over two years ago. It was then decided, after discussion with several individuals and FTAC, to sort out the legal and technical requirements of gateways. This procedure was started in VK6 by writing to the WIA VK6 Division to seek its support on a gateway proposal. That was in September 1994. Two years ago.

Now it is important not to lay blame on any individual or committee or organisation, as I have been involved in the decision making process and have seen where many delays have occurred. These delays can be as simple as a person or persons not responding to information and proposals circulated by FTAC. FTAC often operates in a vacuum, requesting feedback and not receiving it. Decisions then have to be made at times in isolation, along with the delays this produces.

Our methods of deciding some of these issues suffer due to the heavily regulated nature of amateur radio. Even when we decide where to place gateways on 29 MHz, and what guidelines they operate under, there is still negotiation with the SMA. Further delay. I do not understand why the SMA are involved with many amateur radio issues like this. How we use our bands should be our decision alone.

*21 Waterloo Crescent, Lesmurdie 6076
VK6UU @ VK6BBR

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Spotlight on SWLing

*Robin L Harwood VK7RH**

Well, spring is here and I'm already noticing a distinct change to propagational patterns. The higher frequencies are gradually staying open into the early evenings. It also looks likely that it will be a long slow haul from the sunspot minimum, which may have just passed.

Don't forget that there are some seasonal alterations made to shortwave frequencies in some regions on the first Sunday in September. Usually at the end of September, the majority of European broadcasters and those broadcasting into that region, change both their frequencies and times to coincide with the end of Daylight Saving. However, the European Union unilaterally decided to extend this until the end of October, with the consequence that alterations will take place then.

The Governors of the British Broadcasting Corporation (BBC) announced major changes to the structure of the Corporation, to separate the programming and technical structure, and allowing programming to be put out to tender. Naturally, there is quite a deal of opposition to these planned changes from within the organisation, as well as from outside. One of the proposals was to integrate the BBC World Service news with the domestic news output. This latter proposal has upset many of the "Beeb's" shortwave fans, who rely on its impartiality and authority. Some of these fans include Archbishop Desmond Tutu, Mikhail Gorbachev, George Bush, and they have also voiced their opposition to the planned restructure of the BBC World Service News and Current Affairs output.

There were several hostages in Lebanon about 10 years ago, whose only point of contact with what was happening in the outside world was the BBC World Service. Individuals, such as Terry Waite, who publicly acknowledged the contribution of the Beeb to their morale, have also added their weight to the cause of saving the BBC World Service.

Late in June and in early July, as I was randomly tuning over the 8 MHz marine allocation as I frequently do, I came across a broadcasting station at 0530 UTC, interspersed predictably with a lot of CW interference, being right on the edge of the SITOR segment and the beginning of the CW coastal segment. The station was broadcasting music with a definite Eastern flavour with excellent modulation and good signal strength. The language was obviously Turkish in origin and, judging by its professionalism and presentation, I decided to check the Voice of Turkey's output on 9445 and 9460 kHz. I was quite surprised to find that the programming on 9460 was indeed identical to that on 8445, yet significantly there was nothing on 9445. So it appears as if somebody has accidentally programmed the transmitter to operate 1 MHz down from its usual operational frequency. Strangely enough the signal level on 8 MHz was better here than 9445 kHz had ever been.

I was curious about this odd occurrence and posted a bulletin on the *rec.radio.shortwave* Internet newsgroup to ascertain if others were also hearing it. I did receive a reply from a technical engineer who claimed all I was getting was an image so I checked on another receiver using a different IF and was still hearing the station. Fortunately, others also heard it and the editor of the *World Radio and Television Handbook*, Andy Sennit, informed us that accidental setting of the wrong frequency happens even in the best of stations. If this was the case, it was a whole week before the engineering staff at the Voice of Turkey woke up to the mistake.

In last month's column, I mentioned that CW was rapidly disappearing from HF as more operators are relying on INMARSAT. However, it appears as if HF will be around for quite some time as Globe Wireless, operator of several HF coastal stations, is expanding and widening its coverage by acquiring several HF stations throughout the world. Its operational headquarters are at Half Moon Bay, California. All of its output is controlled from there and incoming messages are handled. All modes are employed including e-mail.

The stations in the Globe Wireless Network are as follows:

Palo Alto Radio KFS

Palo Alto Radio, call sign KFS, is located on the west coast of the United States and has been on the air, continuously, since 1912. It is the flagship station of Globe Wireless. The KFS transmit site is located in the city of Palo Alto, (Santa Clara County) California. The latitude is 37 degrees, 26 minutes, 44 seconds North; the longitude is 122 degrees, 6 minutes, 44 seconds west and the ground elevation is five feet. The site is in a marshy area near the southern end of San Francisco Bay. The antenna complement includes twelve full-wave dipoles, two inverted cones and a loaded vertical for MF. Seventeen transmitters are in use for CW, SITOR and GlobeEmail service on MF and HF. The base of the original antenna tower with its 1921 inscription is still visible.

The receivers for KFS are located six miles south of Half Moon Bay, (San Mateo County) California. The latitude is 37

degrees, 23 minutes, 3 seconds north; the longitude is 122 degrees, 24 minutes, 38 seconds west. The site is on a 150 foot cliff overlooking the Pacific Ocean. The antenna complement includes three log-periodic dipole arrays, several wire V-beams and several rhombics. The receivers in use for CW are Watkins-Johnson model 8271, and for SITOR TCI 8074s are used.

Hawaii Radio KEJ

This is a new coastal radio station constructed by Globe Wireless in early 1995. It is located on the island of Molokai in the Hawaiian Islands, Pacific Ocean. The KEJ transmit site is located near Kahalelani, Maui County, Hawaii. The latitude is 21 degrees, 10 minutes, 45 seconds north; the longitude is 157 degrees, 10 minutes, 49 seconds west; and the ground elevation is 640 feet. The antenna complement is five quarter-wave verticals with elevated ground planes. Five Henry two kilowatt transmitters are in use on the SITOR service on HF.

Gteberg Radio SAB

Gteberg Radio, call sign SAB, operates Globe Wireless transmitters from a location in Sweden. The station is owned and maintained by Telia Mobitel, a Swedish company. Six transmitters are in use for SITOR and GlobeEmail service on HF.

Slidell Radio WNU

Slidell Radio, call sign WNU, is located on the Gulf of Mexico near New Orleans, Louisiana. The transmitters for WNU are located near Pearl River, (St Tammany Parish) Louisiana. The latitude is 30 degrees, 22 minutes, 12 secs north; the longitude is 89 degrees, 47 minutes, 26 seconds west; and as you would expect, being on the delta, the ground elevation is very low at 26 feet. Twenty one transmitters are in use for CW and SITOR service on MF and HF. The receive site for WNU is located on Radio Road near Pearl River, Louisiana.

VCT

VCT is located on the island of Newfoundland in the northwest Atlantic Ocean. The facilities for VCT are provided and operated by Neweast Teleoceanics, a Globe Wireless partner. The VCT transmit site is located 40 kilometres south of St John's, Newfoundland, Canada. The latitude is 47 degrees, 14 minutes north; the longitude is 52 degrees, 51 minutes west. Four Collins HF-80 transmitters, with one kilowatt of output power, are in use for SITOR and GlobeEmail service on HF. This station has a limited coverage for 1500 miles around the North Atlantic.

Awanui Radio ZLA

Awanui Radio, call sign ZLA, is a new coastal radio station constructed by Globe Wireless in 1995. It is located on the north island of New Zealand, in the Southern Pacific Ocean. This station is remotely controlled from Globe Wireless headquarters in California. Incidentally, the callsign of ZLA was first used from 1913 until 1930 when the site reverted to agricultural usage. The site was re-activated last year. Some old-timers may remember hearing the old Telefunken quenched spark sender, presumably on 600 metres. The ZLA transmit site is located near Awanui, New Zealand. The latitude is 30 degrees, 00 minutes south; the longitude is 175 degrees, 00 mins west. Eight Henry two kilowatt transmitters are in use for SITOR on HF. The antennas are individual omni-directional vertical arrays for each marine band in use. The receivers for ZLA are also located about ten miles from the transmit site.

Bahrain Radio A9M

Bahrain Radio A9M is located in the central Arabian Gulf, is currently under construction and is expected to become operational later this year.

Perth Radio VIP

The latest station to join the Globe Wireless Network will be our own VIP, Perth Radio. Although Telstra will continue to be responsible for technical maintenance of the existing equipment, the installation of new data equipment and connection to Half Moon Bay is expected to be completed shortly.

Also Globe Wireless has bought the licenses for the old RCA stations, WCC at Cape Cod, Massachusetts, and San Francisco Radio KPH, and hope to bring them on to the network once approval is obtained from the American FCC. This will leave WLO in Mobile, Alabama as the only significant American HF station not in the Globe Wireless Network. Also, Globe has purchased the old VOA transmitting site in Dixon, California to be the new transmission centre for both KPH and KFS and will eventually phase out both the Bolinas and Palo Alto sites.

Globe Wireless are very keen to obtain reception reports of their various stations from SWLs on land and also reports from ships at sea. All correct reception reports will be verified by a QSL card from the various Globe stations. Reports should contain the following information:

* Date and Time (UTC) of your reception.
* Call Sign (QRA) of the Globe Wireless network station heard.
* Either the actual frequency (QRG), or ITU channel number Mode of transmission heard (SITOR, CW, etc).
* Signal strength (QSA) and quality.
* Any interference (QRM) heard on frequency, or on adjacent channels.
* Did you hear traffic or idle signals? If traffic, who was Globe working? (Don't quote the nature of the traffic or its contents.)
* The model number of your receiver and type of antenna used.
* Location (QTH) of your receiving station.
* Any other comments.

Reports should be sent to: Globe Wireless, Attn: Engineering Department, One Meyn Road, Half Moon Bay, CA 94019, USA. Don't forget to put your return address in order to receive your QSL card.

Globe Wireless definitely sees HF communications as continuing and much cheaper than satellite based systems presently available.

5 Helen Street, Newstead TAS 7250
VK7RH@VK7BBS.ITN.TAS.AUS.OC
Internet: robroy@tassie.net.au

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WIA MORSE PRACTICE TRANSMISSIONS

VK2BWI	Nightly at 2000 local on 3550 kHz
VK2RCW	Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm
VK3COD	Nightly (weekdays) at 1030 UTC on 28.340 MHz and 147.425 MHz
VK3RCW	Continuous on 145.650 MHz, 5 wpm, 10 wpm
VK4WIT	Monday at 0930 UTC on 3535 kHz
VK4WCH	Wednesday at 1000 UTC on 3535 kHz
VK4AV	Thursday at 0930 UTC on 3535 kHz
VK4WIS	Sunday at 0930 UTC on 3535 kHz
VK5AWI	Nightly at 2030 local on 3550 kHz
VK5RCW	Continuous on 144.975 MHz, 5 wpm to 12 wpm
VK6RCW	Continuous on 147.375 MHz, 4 wpm to 11 wpm
VK6WIA	Nightly at 1930 local on 146.700 MHz and nightly (except Saturday) at 1200 UTC on 3.555 MHz

VHF/UHF – An Expanding World

*Eric Jamieson VK5LP**

All times are UTC.

New Distance Record on 24 GHz

On 7/7/96 Neil Sandford VK6BHT/p and Walter Howse VK6KZ/p extended their Australian distance record to 86.2 km over a path from the Darling Scarp near Pinjarra, south of Perth, to Karrinyup, a suburb of Perth. SSB signals were 42/41 on 24048.1 MHz. This was a non-optical path and partly obstructed by trees. Temperature was 18 degrees C and relative humidity 41%. This contact followed a number of contacts the previous day over distances of 69.2 and 79.7 km.

Wal said: *Equipment used at both ends was based on the DB6NT Mark 2 transverter with a DB6NT HEMT PA. Due to lack of measuring equipment the power out is unknown but thought to be in the tens of milliwatts. Penny feeds were used with 600 mm dishes.*

The HEMT PA is based on a DB6NT design with the PCB obtained from the UK Microwave Committee. The circuit comprises a 2SK1844 HEMT followed by two MGF1303s and finally by two MGF1303s in parallel. A four pole waveguide switch is used to enable this amplifier to be used on receive as well as transmit.

The major uncertainty lies in the output level of the DB6NT Mark 2 transverter. My amplifier and Neil's (both built by Neil VK6BHT) have a gain of about 22 dB.

Unfortunately, there is little test gear available (let alone on the surplus market) which covers 24 GHz. We are hoping to calibrate a waveguide diode meter against equipment which Roger Bowman VK5NY brought back from Texas.

Planning for 50th Anniversary

From the *Geelong Amateur Radio Club Newsletter* comes news that the 50th anniversary of the formation of the Club will take place in 1998. Planning is under way and being considered are a Special Event Callsign, Anniversary Dinner, publishing of the Club history, special events, souvenirs, etc.

Barry **VK3YXK** and Dick **VK3ABK** would appreciate the loan of any archival material such as letters, news-sheets, cuttings, photographs, etc for inclusion in any writings or proceedings.

Two Metres

From Melbourne Ron **VK3AFW** reports that, despite the winter conditions, the bands are not dead! Regular weekend aircraft enhancement skeds continue. *"The real DX is never S9"* to quote Ron.

On 27/6 at 2210 VK3AFW worked Andrew VK7XR on 144.080 5x1/5 and 5x3/6 on SSB. This is normally a CW contact. 30/6: 2210 VK7XR again at 5x3; 2214 Des VK3CY worked VK7XR at 5x1. These contacts were made when the temperature was -4 degrees C! 9/7: 2202 VK3AFW to Peter VK2APP on CW and SSB at 5x2/3 over the 480 km path; 2214 VK3AFW to VK7XR 5x5 and on 432 MHz 5x1.

Six Metres

Cliff **ZL1MQ** said that the winter Es this year favoured the lower half of the North Island. ZL3 had no openings. The first sign of winter Es was 24/5 with Kerry ZL2TPY working VK2ABW/2; 15/6 ZL2TPY worked VK9YQS on Lord Howe Island, and on 16/6 added VK2YHN and VK2YLO around 0500. 18/6 ZL2AGI, ZL2KT and ZL2TPY worked VK3LK, and ZL2AGI added VK3ALM. ZL2TPY to VK7YAD. On 19/6 the trio worked VK4AFL; 20/6 and 22/6 VK2FLI and VK2YLO by ZL2TPY. Kerry reported the VK4RGG beacon seven times during June.

A rare winter opening occurred on 3/6 when ZL1TBC contacted ZL2TPY over a path of 480 km. This short skip opened 144 with ZL1AMN working ZL2TAL. ZL1TBG reported the Wellington two metre and 70 cm beacons were copied on 3/6 and 4/6.

John ZL3AAU/TPK reports: *Who says six is dead? Six is alive and well. Try listening for the ZL3SIX beacon on 50.040. I have copied the following beacons and stations over the past two weeks.*

27/6 0414z VK2RSY 52.420 519, 0422 VK7RAE 50.056 529, 0425 VK7RST 52.370 319, 0426 VK2RHV 52.325 419, 0507 VK7RAE 50.056 579, 0507 VK7RST 519.

28/6 0442 VK2RHV 419, 0442 VK2RSY 319.

29/6 0130 VK4RGG 50.057 419, 0130 VK7RAE 419.

30/6 0342 VK4RGG 519, 0347 VK4AFL 50.145 5x7 working ZL3ADT and ZL3TIC. 1/7 0522 VK7RAE 50.056 519, 0523 VK7RST 52.370 419.

3/7 0153 VK4AFL 50.110 41, 0157 VK2RSY 419.

8/7 0413 VK7RAE 519, 0416 VK2RSY 519; 0420 50.089 5x2 two SSB stations using six to set up a two metre contact.

9/7 0523 VK7RAE 519, 0541 VK3LK 50.130 52-9 working ZL3AAU and ZL3TLG.

18/6: Adam VK3ALM reported from Melbourne a good winter Es opening:

0300 VK2FZ/4 QG63 1450 km, 0507 ZL2KT RF80 2740 km, 0510 55.250 ZL Video Ch2, 45.240 ZL Video Ch1, 45.250 ZL Video Ch1, 45.260 ZL Video Ch1, 0521 ZL2AGI RF80 2740 km, 0525 ZL3TY RE57 2260 km.

25/6: Don VK6HK reported VK8VF/b around 0300 via Es.

30/6: John VK3ATQ worked VK2, 3, 4, 7 and ZL – no other details.

13/7: John **VK4KK** worked ZL3NE/1 at 5x9 between 0500 and 0600 and said that on 14/7 the band opened between 0200 and 0630 during which time VK4s worked VK2, 3, 5, 7 and VK9YQS on Lord Howe Island, the latter using a vertical antenna. FK was worked by VK3OT, VK5BC and VK4s. VK4TL worked into North Queensland.

Internet News

With thanks to *Internet Six News, The "On Line" Six Metre Magazine, VHF DX Reports,* Geoff **GJ4ICD** and John **VK4FNQ**, the following is a selection of happenings in the Northern Hemisphere on six metres.

7/6: What a day! N4HSM/VP5 and Jimmy W6JKV/VP5 from Turks/Caicos were in for 2 1/2 hours on phone and CW up to S9+; they worked many Europeans with best DX to YT1AU about 8600 km.

9/6 brought one of the biggest VHF contests in the USA and everybody was put on alert in the USA to beam to Europe; it certainly worked as many Gs worked W2/3/4/5 with strong signals. C6AIE (Bahamas) in for three hours off the back of his beam, but could not hear Europe! The band was open from 1151 to 1745, but it was hard to break into the kilowatts of power. Signals were so good that GJ0JSY worked a W4 with eight watts to a dipole! Other news was that Pierre HB9QQ operating as 8Q7QQ (Maldive Islands in the Indian Ocean) heard signals propagated by sporadic "E" on 50 MHz.

11/6: GJ4ICD in Jersey worked W1/2/3/4/8/9 along with FP5EK and several VE1/3s, 54 stations were worked on CW and SSB, the best being KB9IEC in EM69 at a distance of 6400 km, VP9MZ was also heard.

13/6: Just after lunchtime the band opened from EA to W1/3 and WP4; this was

the 20th transatlantic 50 MHz opening in 1996 and by far the highest number of openings ever recorded. W1/3 also worked EH8BPX and CT3FT at 1600z. Later in the day W1/2/3/4/7 were worked in the UK.

14/6: Good opening to SM3FSK in JP64, a new square for many, and Nick G3KOX worked WA1OUB at 1100z for the 21st USA to Europe opening. Costa SV1DH also reported that he had notched up his 151st country with 4L6PA; he also reported that on 1 July he heard KP4 at 8900 km. Later in the day W1/2/3/4/0 and VE1/3 were worked in central and northern UK plus SM7 and ON4; down here in Jersey things were much poorer with only VE9AA making the trip. On the same day came a report from JA1 that three JAs made it into KL7 at about 5700 km.

4L6PA Expedition

On 16/6 the team arrived in Georgia, Russia, and set the 50 MHz beacon operating on 50.123 MHz. So far no QSOs have been made on 50 MHz. 18/6: JA6IMJ said 4L6PA was worked in JA5/6 at 0956 5x5 on 50.110. That's a long all-land path at around 7500 km. 4L6PA also worked PA and DL. 20/6: 4L6PA worked Charlie VS6XMT at 0619 on 50.110 SSB, signals 5x1 both ways, distance 6750 km. 22/6: 4L6PA to PA, SM, G4. 23/6: 4L6PA into Europe – worked GJ4ICD at S9 giving Geoff country number 155.

16/6: Good KP4 opening at 1715 with KP4EIT SSB and KP4A CW into GJ/G/GW/PA0/F/DL at up to S9/599 until 2045; also, the VO1ZA one watt beacon was heard for many hours in the evening, signals often S9. CT3 and EH8 were audible most of the day.

20/6: 1730 KP4EIT and KP4A into ON/PA/G/GJ/GW/F. KP4EIT was very strong for about 90 minutes with reports of 59/59 to GJ. Mike CY0AA worked EH8 off the back of his beam. The VO1ZA beacon was again heard in Europe. This was the 12th double hop USA/Caribbean day from Europe in June!

A report from **JR3HED** indicates that JD1ADP/b Ogasawara Islands has returned to 50.012 MHz and, from the same area, JD1BJP is active. The VR2SIX/b on 50.074 has not been reported yet. HLs and BVs are active, sometimes BYs and DUs too. KH2 and 9M2 may be QRV this summer.

By the end of June, Chris G3WOS had worked 56 countries on 50 MHz, David G3FPQ (a newcomer to 50 MHz, but not to HF operators) had worked 54 and GJ4ICD had worked 63 out of a total of 69 countries worked in the UK. Jose EH7KW reported having good conditions to W4/5; his best DX was KB5IUA at about 8057 km which was a new 1996 ES distance record.

From the UK

The June report from Ted Collins **G4UPS** confirms most of what has already been written in regard to the northern hemisphere summer openings, with much attention being paid to contacts across "the pond." It seems the beacons, VO1ZA on Newfoundland and the Canadian VE1PZ, have been very consistent as pointers towards the openings. Also, the fact that from 5 to 10 June, N4HSM and W6JKV mounted a DXpedition to Turks and Caicos Islands (east of Cuba) provided a welcome addition to the countries worked tallies of many UK and European stations.

The following 35 countries are a sample of what was worked from the UK: 2E1, 4L6, 4X1, 9A4, CN8, CT, D, EH, EU, F, G, GU, GW, HA, HB, I, IS0, KP4, LA, M0, OE, OH, OK, OZ, PA, S55, SM, SP, SV, VE, VP5, W1, W3, YU, ZB2. Two new prefixes appear in the list, 2E1 and MO, but don't become alarmed that you previously missed them, they are part of two new series being issued in the UK. In addition Ted heard 21 beacons.

Ted makes good use of 28 MHz beacons for pointers towards 50 MHz openings, but mentions it is not uncommon for 50 MHz to be open when 28 MHz appears closed. When Ted hears the 50 MHz VO1ZA or VE1PZ beacons and there is no activity from the North American continent, he often telephones Bob Mobile WA1OUB to warn him of an opening and the news is placed on the DX-Cluster. That's co-operation!

From the Other Side

Emil Pocock W3EP in *QST's The World Above 50 MHz for* August reports that: *The 1996 sporadic-E season got off to a booming start, with no less than five days of 50 MHz transatlantic propagation in May. This is unprecedented! The opening of the afternoon of May 28 was outstanding. Stations from Nova Scotia to Florida and west to at least Ohio worked Europeans in a dozen different countries as far east as Germany, Austria and Malta. The band remained open for at least five hours.*

VE9AA made 67 QSOs in 15 countries, WA1OUB had 75 QSOs in 17 countries. Leigh VE1GA used an FT-620B running 10 watts to a dipole and worked several GM stations on both CW and SSB. N0LL in EM09 made a 7100 km contact to EH7KW.

Indeed, the sporadic-E conditions during the entire month resembled the peak of the season, not the beginning. E-skip appeared on at least 26 days in May, for a start. Double-hop conditions were evident on at least seven of those days!

Stations were making good use of European television video signals on 48.250 and 49.750 MHz as useful indicators of transatlantic MUF as they did in 1995.

There is every chance that the good conditions of the northern hemisphere will translate to similar conditions for our coming summer, so it will not pay to ignore those north-westerly video signals which are likely to appear as early as November; they may well be coming from places much further away than Asia.

Our most regular out-of-country contacts are with ZL and, when conditions are right, there is always activity from KH6. There is limited activity from FK, FO, P29 and, at the moment, from VK9L, and occasionally from DU, VK9L and VS6.

But there is no activity from the following, all within extended Es range: 3D2, 5W, 9M6, A3, C2, FW, H4, JD1, KC6, KH0, KH1, KH2, KH5, KH7, KH8, KH9, T2, T30, T31, T32, T33, V6, V7, V8, VK9C, VK9W, VK9X, VR6, YB, YJ, ZK1, ZK2, ZK3, ZL7, ZL8, ZL9. It appears a station will operate this year from JD1 and there is a possibility of limited YB activity, but the other call areas just don't have the interested population to support six metre operating, while some of those areas virtually have little or no population. The opportunities could be there for many more six metre contacts but it seems our only chance comes from those stalwarts who mount DXpeditions.

Were it not for the ZLs and the JAs, the latter usually via TEP, then we would be well and truly isolated when F2 is absent.

Closure

Local information has been scarce this month, probably reflecting the mid-winter conditions, but with the approach of the equinox we may see more contacts.

Closing with two thoughts for the month:

1. Those obsessed with health are not healthy; the first requisite of good health is a certain calculated carelessness about oneself, and

2. After a little experience, a man realises he can go to bed at midnight and seldom miss anything.

73 from The Voice by the Lake

**PO Box 169, Meningie SA 5264*
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Packet: VK5LP@VK5WI.#ADL.#SA.AUS.OC

ar

Have you advised the SMA of your new address?

Silent Keys

Due to space demands obituaries should be no longer than 200 words.

The WIA regrets to announce the recent passing of:-

G (George)	HIMOLIJ	L30271
F C (Fred)	MEYER	VK2AAX
R J	FLYNN	VK2AY
L W S	COCKS	VK2DF
L T (Tas)	MCLOUGHLIN	VK2GV
L L	BRENNAN	VK2LM
A J (Tony)	BISHOP	VK4DWM
N D (Noel)	JACKSON	VK4ZNJ

Laurence Tasman (Tas) McLoughlin VK2GV

Shortly before he was to come on air on his regular Saturday morning 8 am sched, Tas closed his logbook. It was with great sadness that I heard of his passing on Saturday, 27 July 1996, and said farewell to a long-standing radio and personal friend. Tas and I became instant friends when I introduced myself with my callsign, VK2ZFO at that time. Since then I have spent many happy months with Tas in his shack, and going pedestrian, tractor and "gee-gee" mobile.

He was a genuine home-brewer, his first transceiver being a self-constructed "Swan" transceiver. He made all the necessary testing equipment himself, too. His aerials were also hand-made, having many repairs and adjustments made to them, partly due to the galahs who fancied the wiring for chewing.

As an early amateur in the district he put Ellerston, near Scone, on the map, obtaining his DXCC. Despite his lifelong handicap of severe diabetes he was always cheerful, helpful and mischievous in the kind sense of the word. Because of his diabetes he had to suffer many visits and stays in hospital, still keeping in contact on 2 m.

Many of us will miss him on the air as he had a unique audio quality in speech and tone.

We, as amateur and personal friends of Tas, extend our sympathies to his family and friends. May you rest in peace, Tas.

Fred Overvliet VK2AFO

F C (Fred) Meyer VK2AAX

Fred passed away several months ago at the age of 81 years. Fred's original callsign was VK2AGD; but he let it lapse and was re-issued with his well known call of VK2AAX, a call which many would have heard sent in CW at breakneck speed on 40 metres. Fred's skill in Morse was second to none.

He had an interesting past. Fred was a radio technician with the Police Service and, in later years, practising his trade as a pastry cook, owned and operated the Victory Sponge Kitchen in Hunter Street, Newcastle.

Fred had been confined to hospital for many months prior to his death and a large number of his friends from Westlakes Amateur Radio Club attended the funeral service to say farewell to a good mate and a true "silent key".

Greg Smith VK2CW

Rex Shilton VK4CAG

Rex passed away quietly in his sleep on 10 June in the Buderim Private Hospital, having been admitted two weeks previously battling cancer and pneumonia. Rex was 70 years of age.

Rex trained as a Marine Wireless Operator in 1942. At 17 he went to sea on his first ship. During the war years he saw service as an Australian Mariner in the waters around Australia, and the Middle East route via India as his ship's third Radio Officer.

Following the war, Rex continued to work in communications with the Civil Aviation Authority, serving in many locations from Tasmania to Queensland. Upon retirement in 1986, Rex and his wife Jacqueline settled in Maleny, immediately joining the Sunshine Coast ARC.

Rex was still keen to take on new challenges and to learn new technologies. Acquiring his first C64, he proceeded to master computing and packet radio. He built his own modem, and then helped many others to build theirs.

Always the willing worker, Rex supported his Club, WICEN, JOTA, contesting, and local library displays promoting amateur radio to the community. He was active in his local community as Secretary of the Maleny Arts and Crafts Group, and Treasurer of the Maleny RSL.

Rex was to be admired to the very end, never commenting upon his difficulties and always inquiring of others well being. It was apparent to a number of us that the end was not far away, as Rex set about in earnest to get his affairs finalised in order to save his family the burden. He is survived by his wife Jacqueline and four children.

Geoff Sanders VK4KEL

Rev Tony Bishop VK4DWM

Joining the Divine Word Missionary brotherhood at Marburg, QLD in November 1957, he went to Chicago in 1960 to study theology for two years. Then, in 1962, he went to Rome and studied for four years. Returning to his home town of Mackay, Tony was ordained into the Missionary priesthood. His first appointment was as assistant rector at the novitiate in Marburg in 1966.

In 1971 he went to a parish called Mindoro in the Philippines for over two years. He was transferred to the Bishop's House in the Philippines in charge of students and was involved in administration and audio/visual educational activities. Tony came to Sydney in 1976 and was in charge of a community of Brothers at Kellyville. In 1978 he became a provincial and the first procurator at the DWM located at Epping, Sydney. In 1985 he went to Melbourne and served as Rector and Director of Studies, returning to Sydney in 1988.

Along the way he qualified as an amateur radio operator holding the calls VK2DKY, VK3DWM and VK4DWM. Whilst in Melbourne he qualified as a video technician, then the BOCP in Sydney. He also spent several years in a technical capacity with community radio station 2BCR Bankstown.

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Tony was always assisting and sharing his knowledge with missionary outposts in Papua New Guinea, the Philippines and his many amateur friends. In 1989 he went to Brisbane and was resident chaplain at the Holy Spirit Home for senior citizens. Unfortunately, Tony had not been in good health for some time and was later diagnosed as having cancer; after two years, he passed away on Friday, 10 November 1995 and was buried at the Nudgee Centre of the DWM, Brisbane.

Peter Mulligan VK2ABH
Joe Pietras VK2AJP
Pierce Healy VK2APQ

Victor Chennell VK5JH

It is with regret that I report the passing of Vic Chennell on Saturday, 1 June 1996, after a prolonged illness. Vic was born in 1908 and obtained his amateur licence in 1927.

I first met Vic in the early 1950s when, like many others, I was very active on the old 288 MHz band. It was during this time that Vic encouraged many a young fellow to obtain an amateur licence.

Vic spent a great deal of time on jaunts to various vantage points around the Adelaide area with his 288 MHz gear, giving us "young blokes" the opportunity to observe. And observe we did, with one of the group making the observation that radio waves appeared to travel better from north to south than they did from south to north. This was backed up a short time later in a paper by some professor suggesting just that.

Later Vic spent some time teaching English in Japan. On his return, he held regular skeds on 21 MHz with many of the friends he met during this time.

To his wife Chiyo, daughter Gwenda and family, I extend my deepest sympathy.

Ivan Huser VK5QV
ar

When you buy something from one of our advertisers, tell them you read about it in the WIA *Amateur Radio* magazine

WIA News

USA Celebrates "Amateur Radio Day"

Saturday, 21 September, is Amateur Radio Awareness Day in the United States. It is a promotional event sponsored by the American Radio Relay League (ARRL), the purpose of it being to provide an opportunity to drum up media and community interest in amateur radio activities.

The League suggests interested US amateurs should write and distribute news releases about the event, and put on public ham radio demonstrations in schools or shopping malls, for example. The ARRL provides press kits and other publicity aids specially for the event.

Never a country to do things by halves, the US also has an Amateur Radio Week in June each year. This year, it ran from the 16th to the 23rd. Amateur Radio Week is tied to the annual Field Day in the US, which runs over the week's concluding weekend.

The ARRL also produces an Amateur Radio Week/Field Day publicity kit. "Letting people know what the hobby is all about and the valuable service hams provide in times of disaster is the name of the game," according to the ARRL.

A proposal for a National Amateur Radio Day in Australia is being prepared by the WIA Queensland Division (see *WIA News*, June 1996, p 4), with the idea that WIA Divisions, affiliated clubs and individuals set up and operate displays to generate community awareness and media publicity about amateur radio. This proposal was planned to be on the agenda for a WIA Federal Council meeting in July. However, this meeting was cancelled to reduce WIA Federal operating costs. The planned proposal is to go forward at the next scheduled Federal Council meeting in October.

UK Amateurs on 73 kHz

British amateurs are now experimenting on their new 73 kHz band, according to a recent news report from the Radio Society of Great Britain. The new allocation is 2.8 kHz wide, centred on 73 kHz, and operators are able to use all permitted modes.

The August issue of the RSGB magazine, *Radio Communications* contained a number of features and articles on the UK's new low frequency band. The Society has also just published a book on the subject, titled *The LF Experimenter's Source Book*. It brings together source material from all over the world covering antennas, propagation, receivers, transmitters and test equipment, said the RSGB. It is priced at seven pounds, 50 pence.

The WIA is pursuing a low frequency allocation for Australian radio amateurs, proposed to be in the 150-200 kHz region, to coincide with allocations available to New Zealand, Papua New Guinean and American amateurs.

Technical Correspondence

All technical correspondence from members will be considered for publication, but should be less than 300 words.

Strip Yagis

I thank the team at *Amateur Radio* magazine for publishing my article on the "strip" two metre Yagis. However, I was surprised and somewhat mystified by the Technical Editor's suggestion, at the end of the article, about two mounting bolts per element.

Perhaps I misunderstand, but firstly, given the small area available for element mounting, I'm not sure how one could utilise two bolts. Secondly, additional holes would seriously weaken the boom, and thirdly, there is simply no reason for using a second bolt. As long as the mounting holes are accurately drilled, well centred, and a good match for the bolts used, the element rigidity when the bolts are tightened is perfectly adequate.

My own antenna (five elements), mounted on a 30 foot tower for nearly five years, has never required any maintenance whatsoever.

One mounting bolt is fine, although the use of washers is recommended.

Felix Scerri VK4FUQ
9 Garbutt Street
Ingham QLD 4850

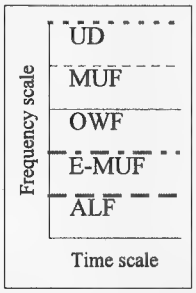
(Thank you for reassuring us about the practicability of one bolt per element, Felix. Your article was one of the few on which I "keep my hand in" at technical editing, and I do tend to adopt a "belt and braces" attitude to things like this, particularly in a mobile application. Your experience with a fixed antenna shows me to be perhaps too cautious. Bill Rice VK3ABP, Editor.)

ar

HF PREDICTIONS

Evan Jarman VK3ANI

T Index: 10



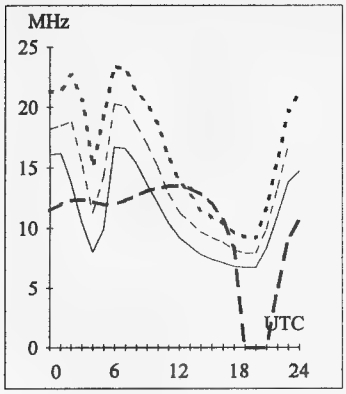
These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. They also indicate a possibility of communication (percentage).

The frequencies identified in the legend are:-

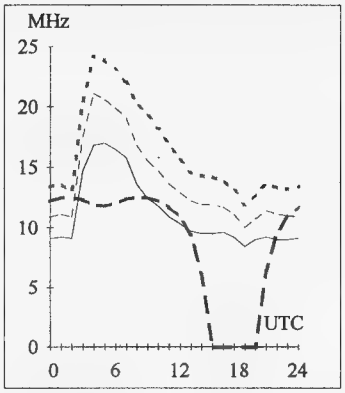
Upper Decile (10%)
Maximum Useable Frequency (50%)
E layer MUF
Optimum Working Frequency (90%)
Absorption Limiting Frequency

The predictions were made by one of the Ionospheric Prediction Service Stand Alone Prediction Systems. The T index used is shown above the legend. The Australian terminal azimuth (degrees), path length (kilometres) and propagation modes are also given for each circuit. **ar**

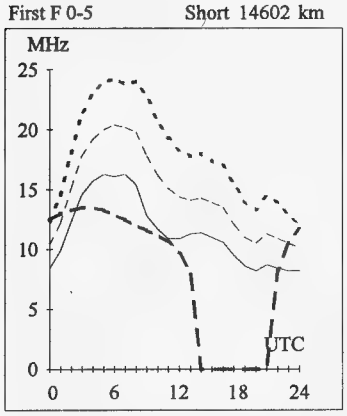
Adelaide-Dakar 233
First F 0-5 Short 16725 km



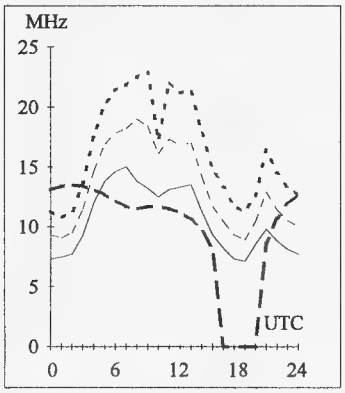
Brisbane-Johannesburg 229
Second 4F3-5 4E0 Short 11634 km



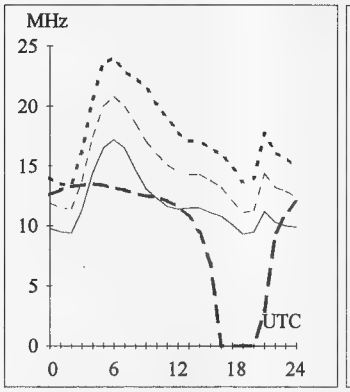
Adelaide-Helsinki 323
First F 0-5 Short 14602 km



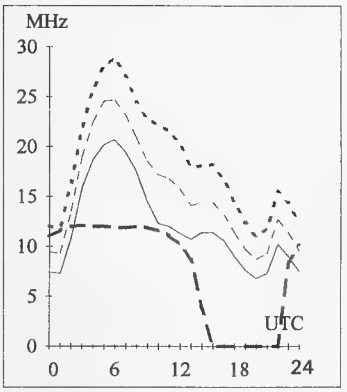
Brisbane-London 327
First F 0-5 Short 16526 km



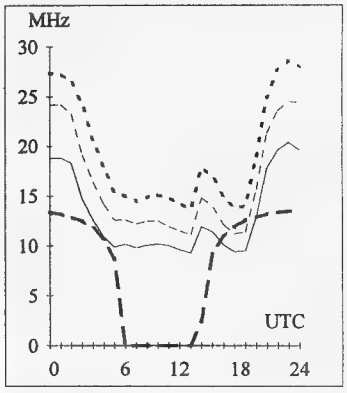
Canberra-Berne 304
First F 0-5 Short 16594 km



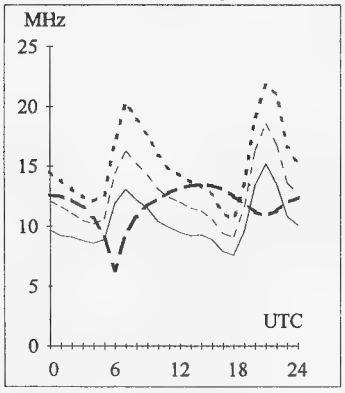
Darwin-Harare 250
Second 4F4-6 4E0 Short 10594 km



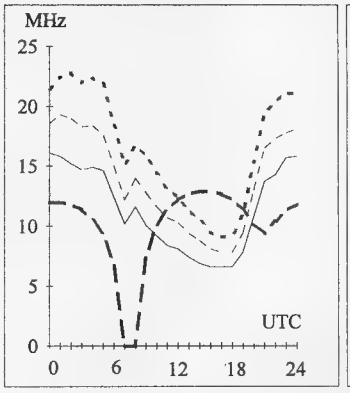
Adelaide-San Francisco 61
First F 0-5 Short 12994 km



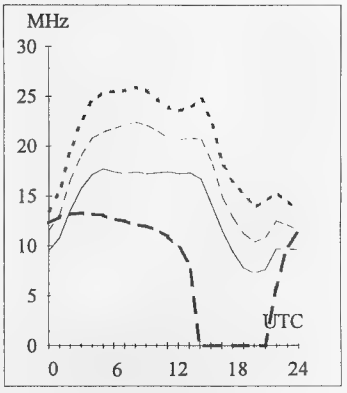
Brisbane-London 147
First F 0-5 Long 23498 km



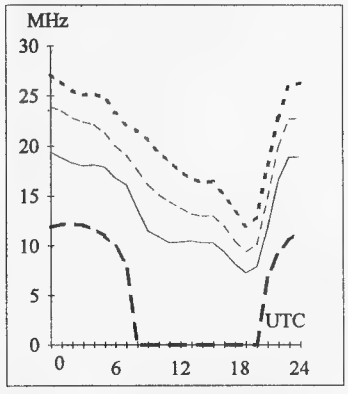
Canberra-Brasilia 159
First F 0-5 Short 14060 km



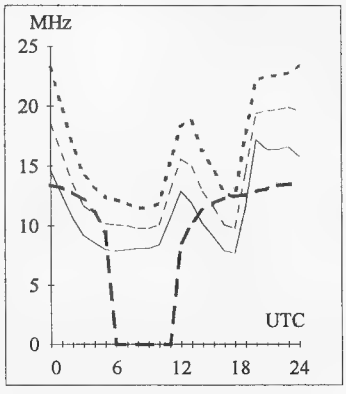
Darwin-Kiev 319
Second 4F2-6 4E0 Short 11800 km



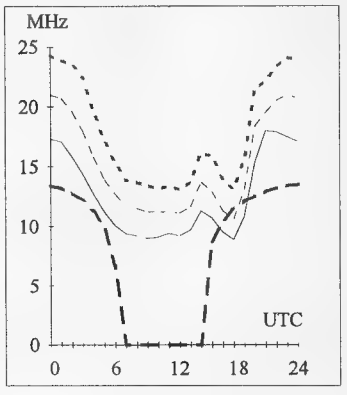
Adelaide-Tokyo 1
Second 3F4-8 3E0 Short 7855 km



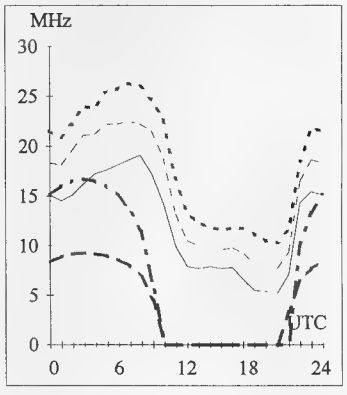
Brisbane-Ottawa 52
First F 0-5 Short 15306 km



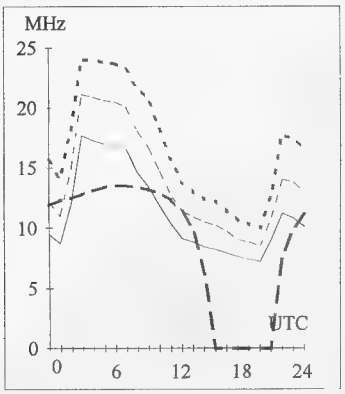
Canberra-Vancouver 46
First F 0-5 Short 12739 km



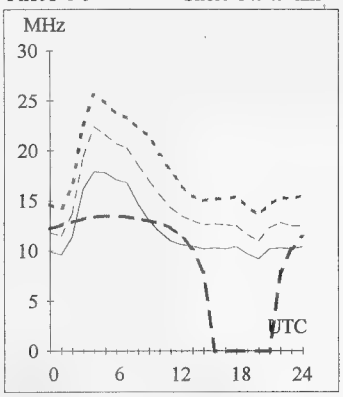
Darwin-Osaka 5
Second 3F11-18 3E2 Short 5264 km



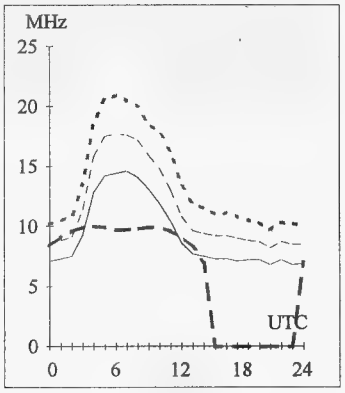
Hobart-Cairo 278
First F 0-5 Short 14264 km



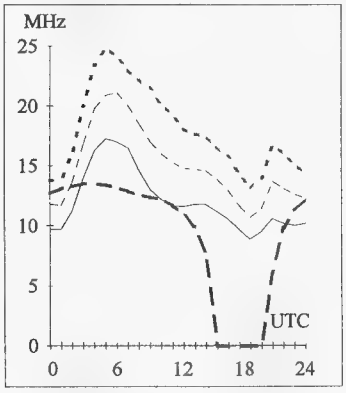
Melbourne-Athens 289
First F 0-5 Short 14949 km



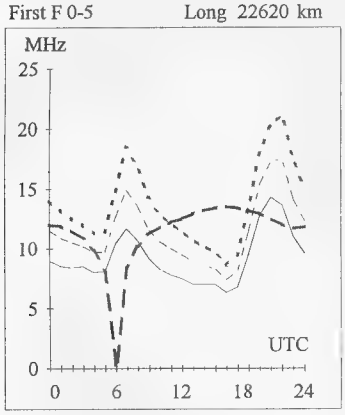
Perth-Capetown 237
Second 4F7-11 4E0 Short 8701 km



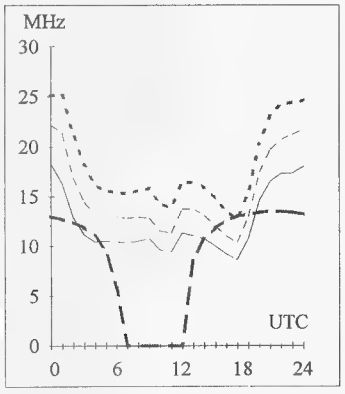
Sydney-Budapest 306
First F 0-5 Short 15776 km



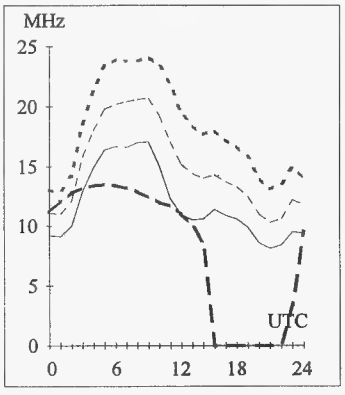
Hobart-London 123
First F 0-5 Long 22620 km



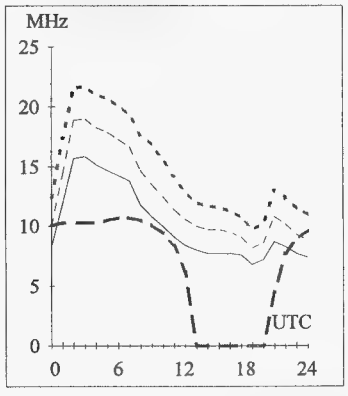
Melbourne-Dallas 76
First F 0-5 Short 14480 km



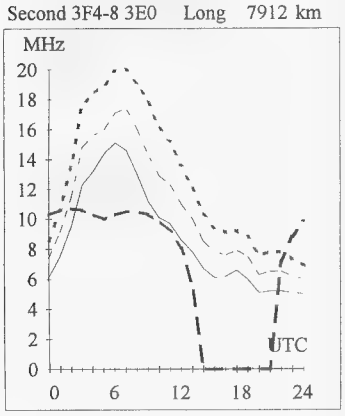
Perth-Copenhagen 319
First F 0-5 Short 13693 km



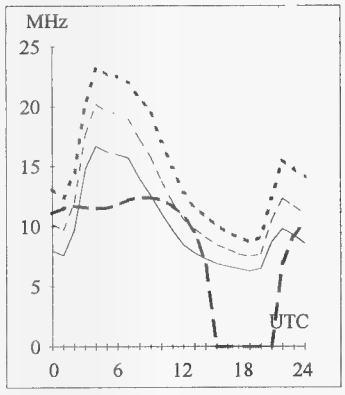
Sydney-Mauritius 251
Second 4F7-9 4E0 Short 9087 km



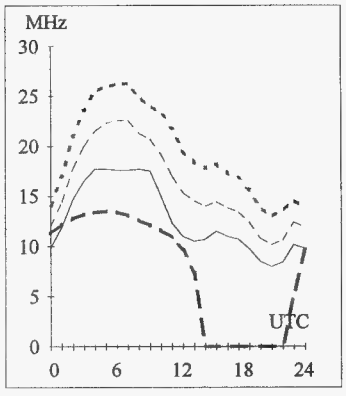
Hobart-Marion Island 223
Second 3F4-8 3E0 Long 7912 km



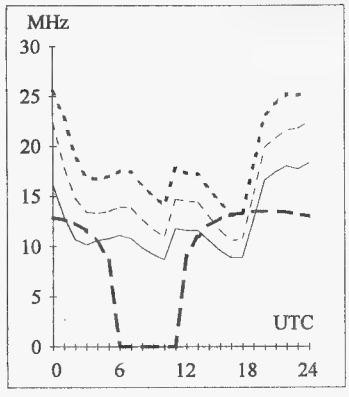
Melbourne-Lusaka 241
Second 4F3-6 4E0 Short 11153 km



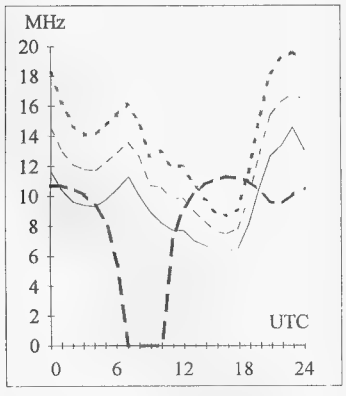
Perth-Moscow 324
First F 0-5 Short 12219 km



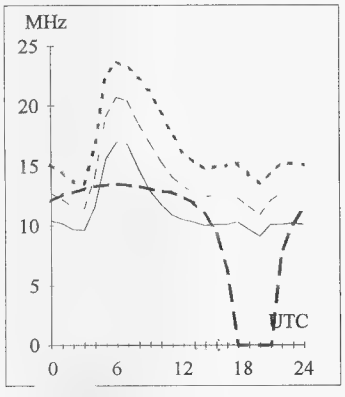
Sydney-Miami 86
First F 0-5 Short 15026 km



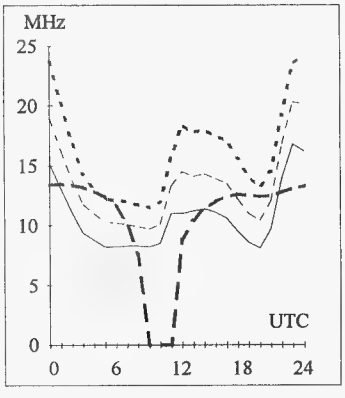
Hobart-Santiago 149
Short 10687 km



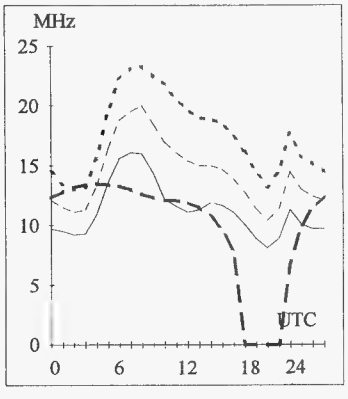
Melbourne-Madrid 286
First F 0-5 Short 17308 km



Perth-Washington 53
First F 0-5 Short 18614 km



Sydney-Paris 312
First F 0-5 Short 16957 km



HAMADS

TRADE ADS

• **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney: Webb Electronics, Albury: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra: and WIA Equipment Supplies, Adelaide.

• **WEATHER FAX programs** for IBM XT/ATs *** "RADFAX2" $35.00, is a high resolution shortwave weatherfax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M Delahuntly, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

• **HAM LOG v.3.1** – Acclaimed internationally as the best IBM logging program. Review samples....AR: "Recommend it to anyone"; The Canadian Amateur: "Beyond this reviewer's ability to do it justice. I cannot find anything to improve on. A breakthrough of computer technology". ARA: "Brilliant". Simple to use with full help, the professional HAM LOG is immensely popular (now in its 5th year), with many useful, superb features. Just $59 (+ $5 P & P), with a 90 page manual. Special 5 hour Internet offer. Demos, brochures available. Robin Gandevia VK2VN (02) 369 2008 BH fax (02) 369 3069.Internet address rhg@ozemail.com.au.

FOR SALE NSW

HF transceivers **Icom IC735** s/n 01635, $750; **Yaesu FT7** s/n 8G060790, $300; HF linear Yaesu FL110, $225. All with manuals. ONO. Simon VK2EII QTHR (02) 328 7141.

Kenwood TS530S HF xcvr s/n 1120973 with spare PA valves, $675; **Tono MR- 1300E** 2 m 130 W amp s/n 75488, $500; **Kenwood MC50** Desk Mic, $60; **Yaesu YD-148** Desk Mic, $50; **Kenwood TH25A** 2 m HH s/n 9073547 with spkr/mic & case, $265. Steve VK2KFJ (02) 9975 3933 AH.

Yaesu FT-757GX Tx/Rx excellent condition s/n 3M030511, $800; **Emtron EAT-300** ant-tuner s/n 001036, $30; **Emotator 502SAX** rotator as new, $300. David VK2QJ QTHR (02) 9630 3404.

General Radio Model 1606-A RF bridge, 400 kHz 60 MHz resistance and reactance; **Marconi Model TF2002** signal generator, 10 kHz 72 MHz AM/FM; **Hewlett Packard Power Meter 430C** with bolometer, model 477B; **Hewlett Packard** noise sources **HP349A, G752D, X347A, S347A**; Distortion analyser **HP332A**; Test Oscillator **HP651**; Tektronix CRO; 422 Marconi sig gen **TF1066, TF801**; Power meter **HP430C, HP410B; Yaesu 101E;** RF bridge model **GR1606A.** Peter VK2CPK (02) 9605 4790.

Kenwood TS940S transceiver with inbuilt ATU, s/n 5700664, vgc, mic and manual, orig packaging, $2,300. Paul VK2HV (049) 33 5995 after 6 pm.

Yaesu FT901DM HF xcvr, good condition, comes with manual & cables, base mic YD-148, $650 ono, includes mod from CQ magazine; **Yaesu FV-901DM** external VFO, excellent condition in original box with leads and manual, $325 ono; **Icom IC-2GAT** handheld with BP-70 battery, boxed and mint condition, includes wall charger, antenna, manual & circuits, also BC-36 charger, AD- 12 external pwr adaptor, HM-46 speaker microphone, LC-40 carry case, MFJ-1714 dual bander 1/2 wave ant, cost $1,140, sell for $850 ono, can separate, all in mint condition; **Icom LC-40** carry case, good condition, $20; **Motorola hand held leather carry case,** heavy, good condition, $25; **MFJ** transmitter antenna switch model MFJ-1700B, excellent condition, $125; **Phillips GM-2877** signal generator, no pwr lead, fair cond, $30; **BC-275 27** MHz frequency counter by NACL, fair condition, $35; **RF Signalizer** 27 MHz model M-10, range from -15 dB to +15 dB, good condition, $35; Three band, short wave Radio Kit, **K-6355** from D Smith, includes all hardware, components and instructions, $65; **Leson pwr mike TW-205B**, good condition, boxed, no plug assy, $35; **WIA Correspondence Course**, 3 books, excellent condition, $35; **Old headphones** with connector by S G Brown Ltd London, PAT 29833, good condition, collectors items, make an offer. Steve VK2SPS (02) 9999 2933 after 6 pm.

FOR SALE VIC

Yaesu FT107M, full solid state, all band, HF xcvr, in-built AC PSU, VGC, $650. Ron VK3OM QTHR (059) 44 3019.

Valves, two 4/400, new and one ceramic socket, $100. Ken VK3JII QTHR (03) 9580 5347.

Yaesu auto tune ATU **FC-757AT**, suits FT-757, vgc, complete with manual, $350. Don VK3DON QTHR (03) 9848 3059.

Amateur Radio Garage Sale. **Vintage Amateur Radio equipment,** parts and magazines. All reasonable offers considered. 9 am – 2 pm, Saturday, 14 September, 6 Hadley Crt, Glen Iris 3146.

Diamond SX-400 VHF/UHF pwr/swr meter (similar to Revex W540), $110; **Revex W502** HF/6 m PWR/SWR meter, $140, both as new – check DSE catalogue for specs; **Icom IC-R7000** comm Rx, 25 MHz to 2 GHz, as new condx, orig carton, manual, etc, $850 ono. Damien VK3RX (054) 27 3121.

Yaesu 101ZD, EC w/manual, $475; **Yaesu FT707 ATU**, EC w/manual, $100; New matched pair **6146Ws** and new **12BY7**, $100 or as lot, $600. Bob VK3PT (054) 39 6314.

Shack Sell Out. **Kenwood TS680S**, $900; Power supply PS50, $250; **Kenwood MIC60**, $100; Linear **Yaesu FL2100B**, $600; Emtron antenna tuner **EAT-1000A**, $275; Antenna rotator **Ham M**, plus cable and coax, $180; **Dummy load**, $50. Ken VK3TL (03) 9728 5350.

Shack Clearance. **Kenwood MA5**, HF mobile antenna set, 80/10 m, $125; **Yaesu FT208** 2 m HH, spkr mic, charger, 12 V DC adapt, $175; **Yaesu FP12** 15 amp PSU, $150; **Yaesu FP707** 20 amp PSU, $225; **Yaesu FT-101E** as new, $325. Ron VK3OM QTHR (059) 44 3019.

Microwave modules **MMT144-28 transverter**, full documentation, $160; **Yaesu FT7** transceiver (mint condition), $300; **Clipsal key**, $45; **Emotator 103LBX** rotator, vgc, $200; **MFJ949D** 300 W ant tuner, vgc, $250. Roger VK3XRS (051) 52 1163.

ATN 13-30-8 8 element log periodic antenna, 13-30 MHz, complete with all parts and accessories inc balun, manual, vgc, $500. Bruce VK3WL (052) 82 2664 AH, (03) 9480 0111 BH or mobile (018) 67 6199.

IBM compat **XT computer**, 20 Mb hard disk, 5.25" 360 k floppy, 640 k RAM, Hi res green monitor, keyboard, comms and other software, good condition, $80; **Baycom packet modem**, as MDRC design, made up and going, $55. Harold VK3AFQ QTHR.

FOR SALE QLD

Kenwood TS430S, $950; Power supply **PS30-20A**, $190; **Yaesu FT480R**, 30 watts, $280; **Yaesu FT207R** (needs repair), $50; Automatic A/T, **Daiwa CNA-1001**, $230; **Trapped Longwire**, 3.5-14 MHz, $160; Speaker Mike **YM-24A**, $45. Sigi VK4ASN QTHR (07) 3207 2050.

Southern Cross tower, 10 m free standing, c/w rotator and masting, $500 ono; **50 MHz Yagi**, 11 el 9 m boom, $250; **Belcom Liner 430** 70 cm SSB, $150. Rod VK4KZR QTHR (07) 3353 3379 AH.

Uniden 2020 tcvr with mic, manuals, AC/DC power cords, power supply NR, failed during QSO with VE/W3. LAO, Alan VK4BWG QTHR (07) 3408 3652.

CRO cameras 2 Hewlett Packard 1 Tektronix and handbook with adaptor plates & graticules, Polariod cameras. Reimburse cost. John VK4AAF (079) 28 6573.

Valves. 833A unused boxed with fittings, $70; 16 Vintage Phillips, Mullard, Osram 4-pin, eg **PM12A, A442, MH4**, $250; 4000 S/H **octal, miniature, metal**, $1,000 ono. Hadgraft, 17 Paxton St, Holland Park Qld 4121 (07) 3397 3751 AH.

Transmitting tubes, new boxed **810** or **813,** $50 matched pair; **QE08-200,** $60 pair; **Phillips QB3-300**, $25; **12BY7A,** $10; **Yaesu FV101DM** digital VFO (unused), $75; **Power Supplies** 13.5 V 3 amp protected (regulated), $25; **Willis U10D** 25 watt UHF transceivers, $30; **6B4-G triodes**, new, $10 each; **Coaxial relays** 1 pole 6 position BNC, 28 VDC, $40; Ditto "N" type SPDT, UHF precision, 3 GHz, 48 VDC, $40; Plate blocking **capacitors 1000 pF 20 kVw**, $25. John VK4KK QTHR (07) 3269 6647.

FOR SALE SA

Versa tuner model **MFJ901B**, unused, tunes all antennas, $120. Murray VK5BVJ QTHR (087) 38 0000.

Sony R/R tape recorder, superb unit, as new stereo, 2 mic inputs, top of line response 30-15000 Hz, also pro "BASF" tapes available, 3 speed mod super Hi Fi pro dance music sell at fraction of cost, $250; Akai as above, $220. VK5DC QTHR (08) 31 4194.

FOR SALE WA

FRG7 Com Rx, gc, $125; **FT290R** 2 m tcvr, gc, $200; **Tokyo Hi power 2 m linear**, 150 W, $200; **Kenwood TS830S**, price negotiable, with **MC50** mike; **Cushcraft R5** vertical, 14-30 WARC, $400. VK6BEB QTHR (098) 41 7773.

WANTED NSW

AR8 parts for restoration. Knob, aerial rectifier assembly, sprockets and chain, connectors (for power, junction and loop), front panel, valve shield, side covers, loop aerial. Ray VK2ZON QTHR (1995) (02) 489 8561.

Mecrograph or McDonald Pendograph or any unusual Australian keys or semi- autos, pay top dollar for any of the above. Steve VK2SPS (02) 9999 2933 after 6 pm.

WANTED VIC

Circuit and technical info required for 1930's "Super Gainer" receiver. Vic VK3KVT QTHR (03) 9754 4860.

WANTED QLD

Single pole three position ceramic rotary switch for linear amp bandswitch, **roller inductor** for linear amp. Ron VK4BL QTHR (07) 55 0230.

Heathkit 6 m amplifier, Heathkit **2 m all-mode transceiver**, Heathkit **SB200** amplifier, Heathkit **VHF SWR-power meter**, Heathkit **HF SWR-power meter**, Heathkit **rotary coax switch**, Heathkit **HW16, HW101, DX40, DX60** transmitters/transceiver for operational Heathkit Museum. Contact "Doc" VK4CMY PO Box 24, Dalveen Qld 4374 or phone (076) 85 2167 before 8 pm please. Vietnam Veterans Wireless Group.

Transistor RCA40582 or proven equivalent, finals driver for Atlas 210X. Can anyone please help? Happy to pay. John VK4SZ QTHR (070) 61 3286.

WANTED SA

Valves one **6U8** or **6EA8,** one **7360** for Yaesu FT200. Murray VK5BVJ QTHR (087) 38 0000.

WANTED WA

Satellite receiver KU-Band B-Mac for rural TV reception, will pay freight, costs, must be in working order. Trevor VK6ZTJ QTHR (098) 25 1008 or fax (098) 25 1240.

MISCELLANEOUS

• THE WIA QSL Collection (now Federal) requires QSLs. All types welcome especially rare DX, pictorial cards and special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765, Tel (03) 9728 5350.

• DO YOU HAVE ANY used telephone cards or stamps lying around? If so could you please send them to the Epilepsy Association of South Australia Inc, PO Box 12, Woodville SA 5011.

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Editor's Comment

Continued from page 2

And, of course, we do now, even more urgently, need some new and preferably young enthusiasm on the Publications Committee. Volunteers need a firm dedication to amateur radio and preferably some journalistic competence (or at least a good grasp of English!). Keyboard skill is highly desirable.

To wind up, last month we were preparing to hit the Strzelecki Track, and also to go to Dalhousie Springs. We ran out of time! But we had a thoroughly enjoyable trip to Innamincka and spent several days camped by the gently-flowing Cooper. The planned second half (up the Oodnadatta Track) will just have to wait for another year.

Bill Rice VK3ABP
Editor
ar

Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details: eg Name, Address, Telephone Number (and STD code), on both form. Please print copy for your Hamad as clearly as possible.
* Eight lines per issue free to all WIA members, ninth line for name and address Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.
* Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.
* Copy typed or in block letters to PO Box 2175, Caulfield Junction, Vic 3161, by the deadlines as indicated on page 1 of each issue.
* QTHR means address is correct as set out in the WIA current Call Book.

* WIA policy recommends that Hamads include the serial numb,er of all equipment offered for sale.
* Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
Conditions for commercial advertising are as follows: $25.00 for four lines, plus $2.25 per line (or part thereof) Minimum charge – $25.00 pre-payable.

State: .....

Not for publication: ❑ Miscellaneous ❑ For Sale ❑ Wanted

Name: ..... Call Sign: ..... Address: .....

WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

	Division Address	Officers			Weekly News Broadcasts		1996 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Philip Rayner John Woolner Bernie Kobler	VK1PJ VK1ZAO VK1KIP	3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc newsgroup, and on the VK1 Home Page http://email.nla.gov.au/~cmakin/wiaact.html	(F) (G) (S) (X)	$70.00 $56.00 $42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Freecall 1800 817 644 Fax (02) 633 1525	President Secretary Treasurer (Office hours Web:http://sydney.dialix.ozau/~wiansw e-mail address: wiansw@sydney.dialix.oz.au	Michael Corbin Eric Fossey Eric Van De Weyer Mon-Sat 11.00-14.00 Mon 1900-2100)	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) (G) (S) (X)	$66.75 $53.40 $38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 9885 9261 Fax (03) 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530)	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st and 3rd Sunday of the month, starts 10.30 am. Primary frequencies 1.840 AM, 3.615 LSB, 7.085 LSB, and FM(R)s 146.700 Mt Dandenong, 147.250 Mt Macedon, 147.225 Mt Baw Baw, and 2 m FM(R)s VK3RMA, VK3RSH and VK3ROW. 70 cm FM(R)s VK3ROU and VK3RGL. Major news under call VK3WI on Victorian packet BBS.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (074) 96 4714	President Secretary Treasurer	Geoff Sanders John Stevens John Presotto	VK4KEL VK4AFS VK4WX	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 52.525 MHz FM, 146.700 MHz FM, 147.000 MHz FM, 438.525 MHz (Brisbane only), regional VHF/UHF repeaters at 0900 hrs Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM, regional VHF/UHF repeaters at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 8352 3428 Fax (08) 8264 0463	President Secretary Treasurer Web: http://www.vk5wia.ampr.org/	Peter Watts Maurie Hooper Charles McEachern	VK5ZFW VK5EA VK5KDK	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHZ FM Adelaide, 1930 hrs Monday.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK6	West Australian Division PO Box 10 West Perth WA 6872 Phone (09) 351 8873	President Secretary Treasurer	Cliff Bastin Christine Bastin Bruce Hedland-Thomas	VK6LZ VK6ZLZ VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 1.825, 3.560, 7.075, 14.116, 14.175, 21.185, 29.680 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.350(R) Busselton and 146.900(R) Mt William (Bunbury). Broadcast repeated on 146.700 at 1900 hrs Sunday, relayed on 1.865, 3.563 and 438.525 MHz; country relays on 146.350 and 146.900 MHz.	(F) (G) (S) (X)	$60.75 $48.60 $32.75
VK7	Tasmanian Division 5 Helm Street Newstead TAS 7250 Phone (03) 634 42324	President Secretary Treasurer	Andrew Dixon Robin Harwood Terry Ives	VK7GL VK7RH VK7ZTI	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart) Repeated Tues 3.590 at 1930 hrs.	(F) (G) (S) (X)	$72.00 $58.00 $44.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).						

Note: All times are local. All frequencies MHz.

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Needy (G) Student (S)
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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly.

VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Yaesu FT-840 HF Transceiver

Performance and Dependability

Looking for a serious HF transceiver that won't break the bank, but don't want to compromise really good performance for the tiny controls, complicated "menus", or poor front-end performance of some of the current micro-rigs? Then the Yaesu FT-840 may be just the rig you're looking for! Covering all HF amateur bands from 160m - 10m with 100w PEP output, and with continuous receiver coverage from 100kHz to 30MHz, the FT-840 provides SSB/CW/AM operation (FM optional), 100 memory channels, a large back-lit LCD screen, two independent VFOs per band, an effective noise blanker, and an uncluttered front panel, all in a compact case size of just 238 x 93 x 243 (WHD).

This is a very easy-to-use transceiver, and unlike some competing models, small size doesn't mean small facilities. Some micro-rigs can't even activate simple functions like a noise blanker without using multiple keystrokes, but not so in Yaesu HF transceivers. The FT-840 provides easily accessible features such as variable mic gain and RF Power controls, SSB Speech Processor for greater audio punch, and IF Shift plus CW Reverse to fight interference. Dual Direct Digital Synthesisers ensure clean transmitter output and fast Tx/Rx switching, as well as greatly improved receiver performance compared to earlier PLL designs. The low noise receiver front-end also uses an active double-balanced mixer and selectable attenuator for improved strong signal handling, so you can fight through pile-ups rather than have to worry about overload from other local signals.

The FT-840 weighs just 4.5kg, and uses a thermally switched cooling fan, surface mount components and a metal case for cool, reliable operation. An extensive range of accessory lines are available, including the FC-10 external automatic antenna tuner, so you can customise the FT-840 to suit your operating requirements.

With the next solar cycle just around the corner, why not get ready to enjoy the great conditions with an HF rig you'll really have fun using. For performance and dependability at a great price, you can't go past the Yaesu FT-840.

Cat D-3275

$1495

2 YEAR WARRANTY

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